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Biological & Medical Serials

VOLUME VII SEPTEMBER, 1914 NUMBER 9

Southern Medical Journal

Journal of The Southern Medical Association

THE TRUTH AND THE TRUTH ONLY ON EVERY PAGE FROM COVER TO COVER

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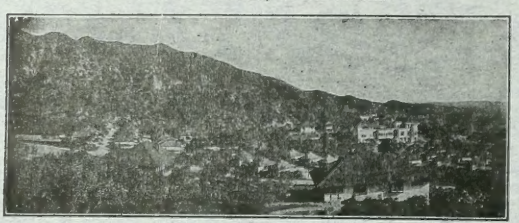

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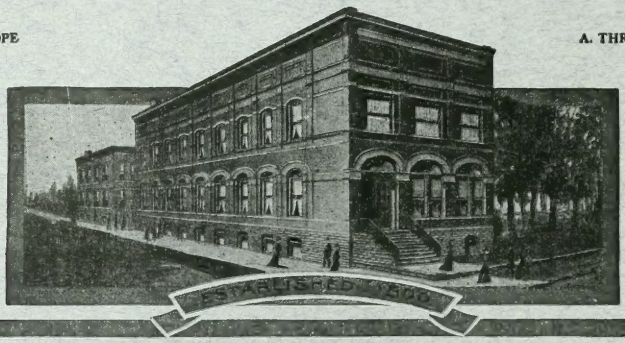

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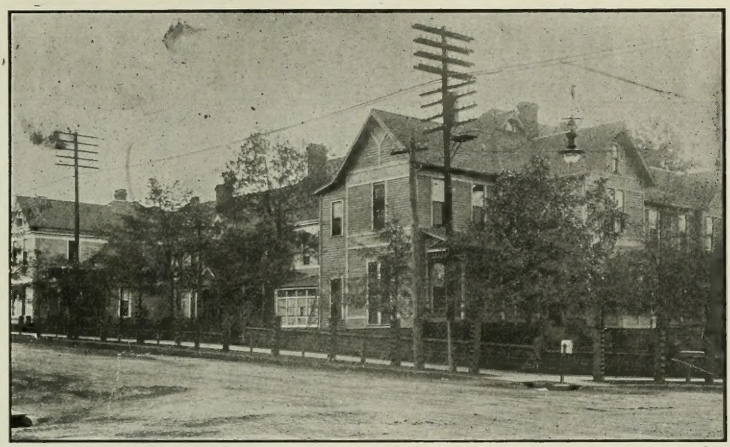

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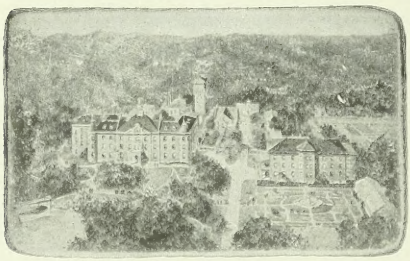

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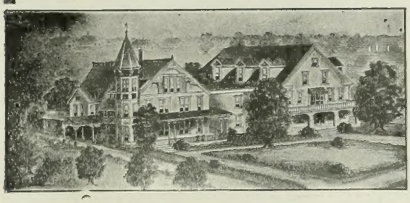

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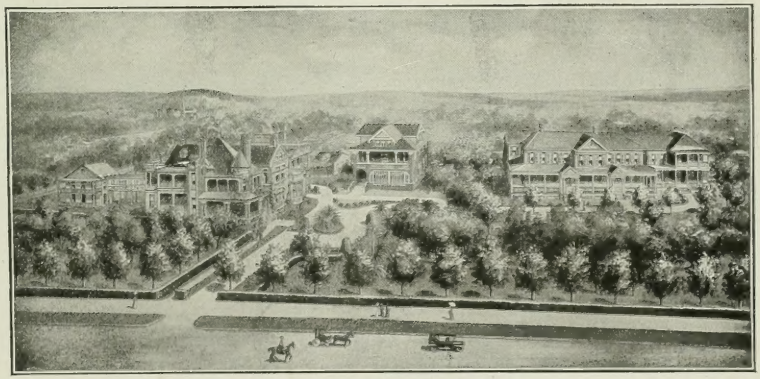

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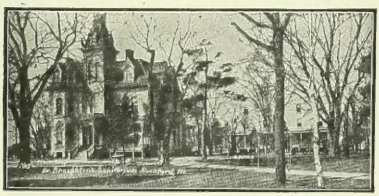

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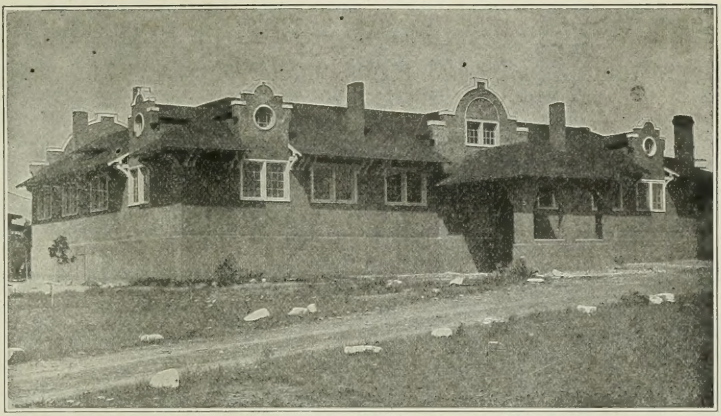

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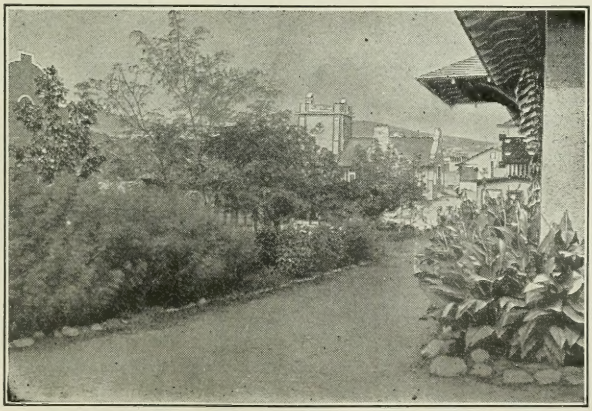

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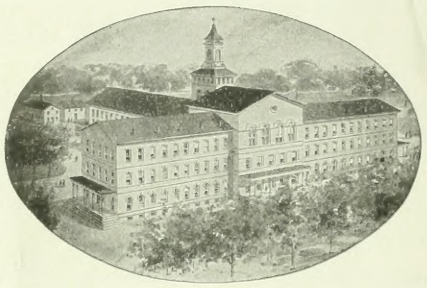

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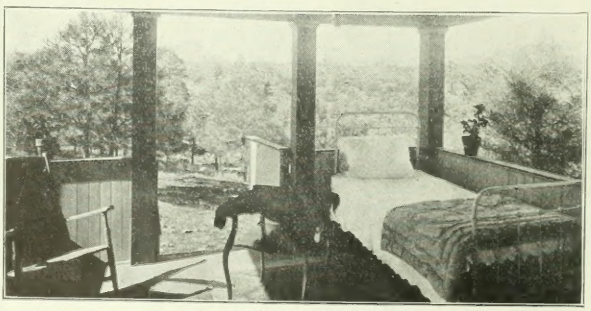

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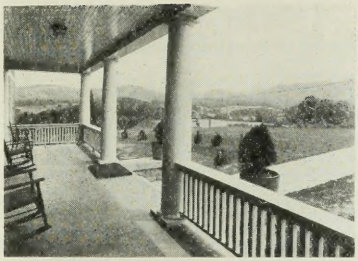

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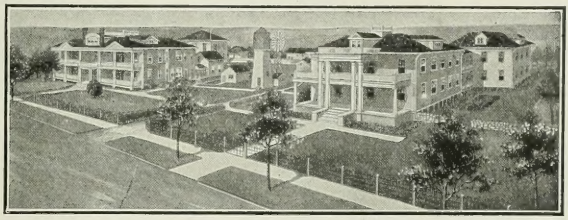

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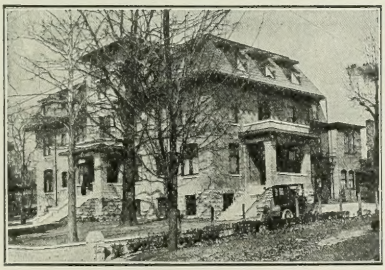

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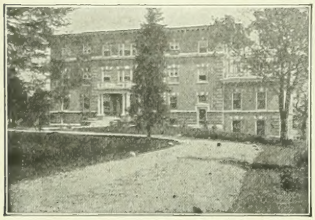

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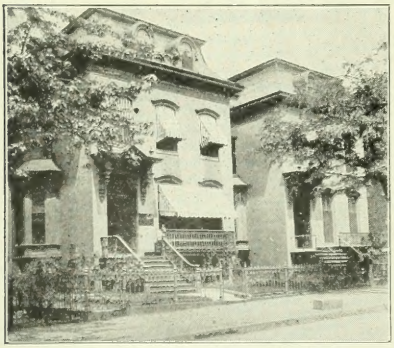

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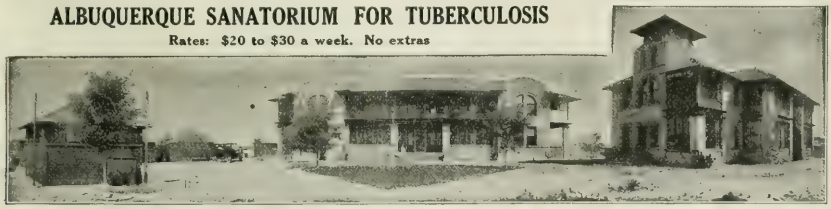

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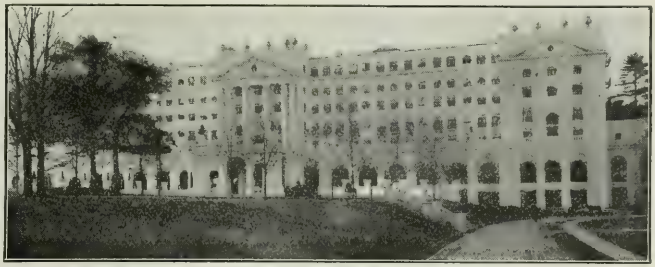

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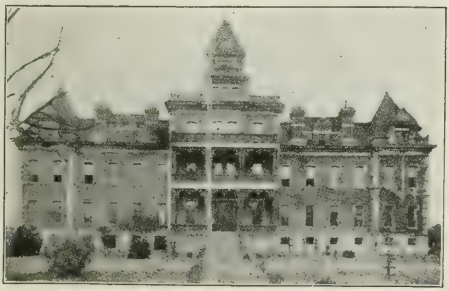

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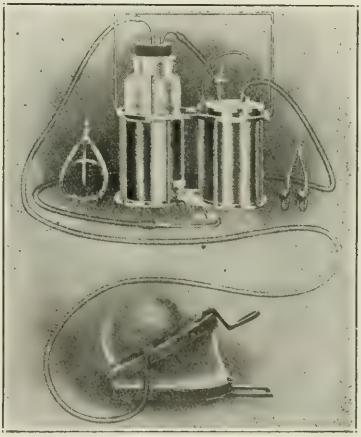

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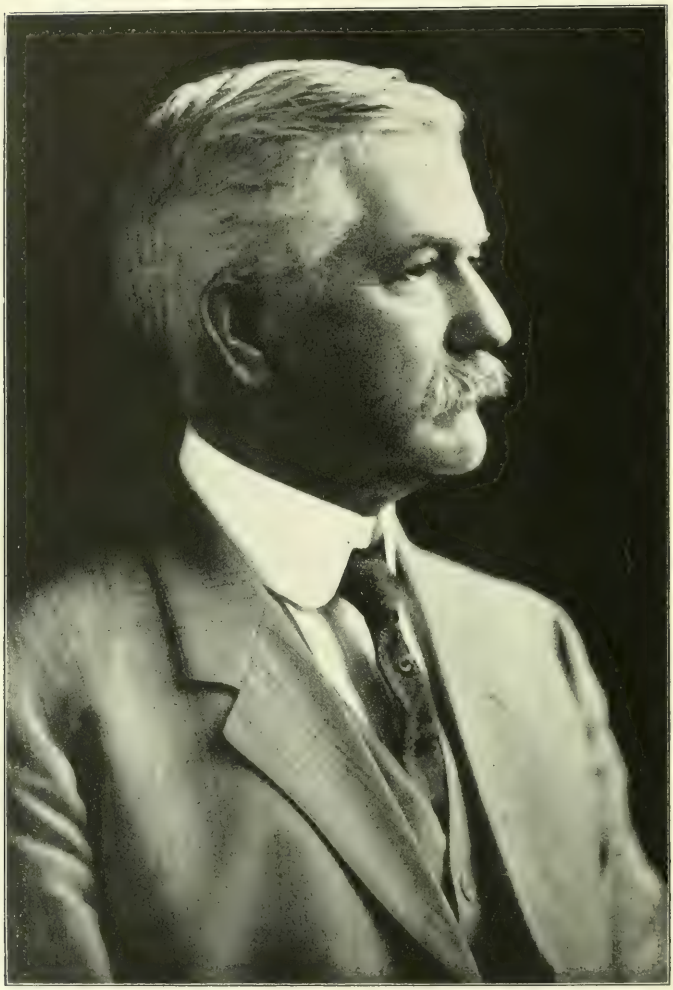

W. C. Gorgas.
Surgeon General U. S. Army
Washington August - 5th 1914.

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JOURNAL OF THE SOUTHERN MEDICAL ASSOCIATION

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Volume VII SEPTEMBER 1, 1914 Number 9

ORIGINAL ARTICLES

SURGEON-GENERAL GORGAS' REPORT ON MALARIA AND BLACK-WATER FEVER IN SOUTHERN RHODESIA.

WAR DEPARTMENT,
OFFICE OF SURGEON GENERAL.

Washington, July 3, 1914.

Dr. Seale Harris, Editor Journal of the Southern Medical Association, Mobile, Alabama.

Dear Doctor Harris: I enclose you copy of a report which I made concerning malaria in Rhodesia on my recent visit to South Africa. As malaria is one of the prominent diseases in our Southern States I thought the report might interest your readers and that you might think it worth while to publish it in your Journal.

The region under consideration lies in tropical Africa along the southern watershed of the Zambezi River. While the region is within the tropics, being about 17 degrees south latitude, the climate approaches that of middle Alabama rather than that of Jamaica. Jamaica is about 17 degrees from the Equator. This is due to the fact that in Rhodesia the country lies at an elevation of some five or six thousand feet, which gives it rather the climate of the temperate zone than of the tropics. The country under consideration is the region which breaks off from this plateau and descends towards the valley of the Zambezi River. This country is being settled up by white farmers and will eventually be the region from which a large part of the agricultural products of this part of Africa will be gotten. They are suffering at present severely from malaria, and under the present conditions it is a question whether the country will be occupied. The English authorities are anxious to do everything they can to protect the settlers and to encourage the settlement of the country. They asked me to look over the country and express an opinion as to whether it was suitable for occupation by the whites, and if so, what could be done to lessen the amount of malaria from which they were at present suffering.

The region has quite an interesting history, extending back some three thousand years, during which time it has been in more or less intimate association with the civilized nations of Asia. It was first known about the time of Solomon, King of Israel, when the Jews, Phoenicians and Arabs began to exploit the country on account of its gold possibilities. At this time it was raised to its highest point of civilization, and remains on all sides can be seen of these peoples. Thousands of shafts are scattered everywhere through the earth which these early people sunk in their search for gold. They had apparently no such thing as pumps, and therefore had to give up a shaft as soon as they struck water. All through the country the remains of large and substantial cities are found which make it quite certain as to the character of the people who occupied them and the approximate time when they were built. This civilization was completely destroyed, and among the natives there is no supposition as to who these people were. The country at this time was evidently not subject to the malaria that it is at present, for under present conditions no such dense population as evidently inhabited it then could live in it now. All knowledge of the country was lost until about the beginning of the sixteenth century, when the Portuguese heard of the region as being very rich in gold and attempted to gain possession of it. When they entered the country about the beginning of the sixteenth century the health conditions were evidently much the same as they are now. The Portuguese found it so unhealthy that they were unable to colonize the country or to hold it with military garrisons. Expedition after expedition which attempted to penetrate the country were entirely wiped out by diseases, and the Portuguese finally gave up the attempt. For three or four hundred years, although the territory was Portuguese territory, they only had communication with it through traders and only obtained gold from the natives by barter.

In 1906 the English finally conquered the country, entirely broke the Matebele power and established their control over the region. Lobengula, the king of the Matebeles, died during this war and the Matebele were broken up as a nation. The Matebele capital, Buluwayo, is now a thriving English town of five or six thousand inhabitants, and the country is rapidly filling up with white settlers. It is decidedly the most attractive part of Central

[illegible] it is destined in the near future to support a large and thriving white population.

Very truly yours,

W. C. GORGAS.

SALISBURY, January 25, 1914.

To His Honor, Sir William Milton, K. C. V. O., K. C. M. G., Administrator, Southern Rhodesia:

SIR: In accordance with your invitation, we (Major Noble, Dr. Darling and myself) left Johannesburg on Wednesday, January 14, reaching Salisbury Friday, the 16th.

Sunday we visited the Arcturus mines. Monday, Tuesday and Wednesday we spent visiting the Shamva mines and inspecting the rural districts between Salisbury and that point, lying along the railroad. We have also seen a good deal of the neighborhood of Salisbury and have been furnished a great deal of useful data by Dr. Fleming, the medical director.

The matter that has principally been brought to our attention from a sanitary point of view is the sanitary condition of the valleys lying along the railroad north of Salisbury and down the Mazoe River. Here the population has suffered severely from malaria and blackwater fever, and there is a good deal of anxiety among them on this account.

The country is not naturally an unhealthy region. It is a rolling, well-watered, beautiful agricultural region to the eye. While the country is well watered, the natural drainage is such that one would not class it as a naturally malarious country, the topographical conditions are such that one can predict that within a few years cultivation and clearing and the drainage and drying of the soil that necessarily accompanies these conditions will rid the region of malaria and blackwater fever.

It is a very general observation that a region originally malarious becomes free from malaria and healthy as settlement and cultivation proceed. As an instance, the regions in the United States comprised in the States of Indiana, Illinois and Michigan fifty years ago were notorious for the amount and severity of their malaria, and were known throughout the country as being most unhealthy regions. Today there is in these localities little or no malaria, and this section is known as one of our healthiest and most productive agricultural regions. This has been the rule everywhere as new countries have been settled up. At first severely malarious; with settlement, cultivation and drainage becoming salubrious and healthy. Dr. Fleming tells me that the same thing is occurring here in the older settled portions of the country. He states that in the early years Salisbury was badly malarious, but that at present malaria is little known. The country in the Mazoe Valley is so naturally well drained and salubrious that I dare predict that this change will rapidly come about. What is needed in this instance is the adoption of such measures as will protect the settler till this desirable condition is brought about. These measures are well known to sanitary science and have been abundantly tested over and over again.

It has been proved that malaria is due to a minute microscopic parasite that gets into the blood of the human being and causes the symptoms which we know as malaria. It has been proved equally positively that the parasite is transferred from person to person by a certain species of mosquito—the anopheles—and is transferred in no other way. There are several species of mosquito, but this one alone transfers malaria.

The female mosquito, when she is several days old, lays her eggs in some convenient body of water. Any collection of water will answer her purpose, a water-puddle, water in an old can or bottle, roof gutters, cisterns, a neighboring swamp or stream, or any other kind or character of fresh water. She deposits about fifty eggs at a laying, these eggs hatch out into the larvae within one, two or three days. The larva is the little wiggler so commonly found in cisterns and water deposits during warm weather. This larva has to have water in which to live and develop. At the

end of another eight or nine days this larva has developed into the full-grown mosquito. It takes about ten or twelve days for a generation of mosquitos to develop. Only the female mosquito has a biting apparatus, and, therefore, she alone is concerned in the transmission of disease. The ordinary food of all mosquitoes is not blood, but consists of vegetable juices. The female mosquito requires blood in connection with ovulation. She transfers malaria from person to person by biting the individual sick with malaria and thereby sucking up and swallowing his blood. This blood contains the malarial parasite. The parasite bores its way into the wall of the mosquito's stomach, where it develops in great numbers. From the stomach wall it passes into the general body of the insect and finally gets into the salivary glands and saliva.

The period of time from the swallowing of the blood by the mosquito till the malarial parasite reaches the spittle in the salivary glands is about twelve days. As the mosquito introduces her biting apparatus into the tissue she injects her saliva. This saliva is very irritating to the tissues and causes the small blood vessels (capillaries) to greatly expand. This enables her the more easily to get her proboscis into one of these small vessels and thereby the more easily get her meal of blood.

This knowledge of the life habits of the malarial parasite and of the mosquito has enabled man to work out methods whereby he can protect himself from malaria and eradicate the disease in any given locality. The most practicable and feasible of these methods is that of destroying the mosquito during its larval stage. With this object the ground around every dwelling in a malarious country should be carefully drained for a space of two hundred yards. All water containers of all kinds within this space should at the same time be destroyed, such as old cans, bottles, etc. We have adopted the limit of two hundred yards as that is about the extent of the single flight of an anopheles mosquito. If for any reason there are within this limit collections of water that cannot be done away with, paraffin oil can be used. The oil acts by smothering the larvae. Every minute or two the larvae has to breathe, and for this purpose it has to rise to the surface of the water. Paraffin oil spreads in a thin coat over the surface of the water. When the larvae next rises to the surface to obtain air the oil enters its breathing apparatus and smothers the insect. If oil is not suitable, as on the grassy edge of a stream, some poisonous larvaside can be used. These methods are all directed against the mosquito in its larval stage.

The destruction of mosquito larvae is by far the most important anti-malarial measure we have at our command. Of measures directed to the destruction of the larvae, drainage is much the most important and should always be carried out as completely as local conditions will allow. It is obvious in this connection that it is well to locate the dwelling on as high ground and as far from water as circumstances will permit, because under such circumstances there will be the less anti-mosquito work to do. My experience has taught me that man can protect himself from malaria anywhere. If it is absolutely essential that he should locate his dwelling on the edge of a swamp or bank of a tropical stream, he can do so. But the care necessary for his protection in such a locality is very much greater than if he were on high ground away from water.

The anopheles mosquito is very liable to destruction by wind and the direct rays of the sun. For this reason she seeks brush, shrubbery, houses, or any shelter that will protect her against the wind and sun. It is therefore very important to clear off such material within the two hundred yards limit around the dwelling. When the mosquito reaches the cleared space she is unable to fly across. If there is no breeding place within the cleared area, the dwelling will be pretty safe from malaria. It is almost always the case that the above measures cannot be made absolutely perfect; some mosquitos will get to the dwell-

ing. To guard against this, the house should be made mosquito proof. This can be done by using wire netting on the doors and windows and closing all crevices so that the mosquito cannot gain access. With a little care the poorest cabin can be made as safe from the mosquito as the best house.

Some mosquitoes will overcome all these obstacles and get into the house. Such mosquitoes hide during the day in dark places about the dwelling, and can be very easily killed by one with a little experience. When the mosquito gets in from the outside she is generally uninfected and has to bite somebody with malaria before she can do any harm. It would therefore be at least twelve days from the time she got in till the period at which her bite would give malaria. If every day the mosquitoes in a properly screened house are carefully killed, there is very little chance of an individual mosquito surviving sufficiently long to become infected. At Panama we found this measure most effective. Frequently we have had to place several hundred men in very malarial localities, where, for various reasons, it was not advisable to attempt general anti-malarial measures, such, for instance, as men on railroad construction. There we placed them in screened railroad cars and killed every day all the mosquitoes which had gotten into the cars in spite of the nets. By this method we have protected several hundred men in a malarious locality, where a similar body of men not so protected all had malaria. It is one of our main dependencies in dwellings where anti-malarial work is imperfect. Still, some mosquitoes will pass all these lines of defense. The anopheles is a night biter; she seldom bites during the daytime. She therefore generally infects the individual when he is asleep at night. If we can protect him during this period of the twenty-four hours, his chances for contracting malaria are much lessened. A properly constructed mosquito netting over the sleeping quarters will generally do this very thoroughly. My experience has taught me that the best netting is that of canopy shape having no slit and well leaded at the bottom. This requires little or no care in arrangement and is very effective.

But still some mosquitoes will pass this line of defense, and we have another measure to meet such emergency. Many poisons might kill the malarial parasite, and, if introduced into the blood, would cure malaria. Such poisons as arsenic, bichloride of mercury, carbolic acid, etc.; but unfortunately while these poisons are killing the malarial parasite they will also kill the unhappy man carrying the parasite. Fortunately a substance is known which is poisonous to the parasite, and at the same time, has very little effect upon the person on whom the parasite dwells. This substance is quinine, the alkaloid of a tree native to Peru, South America. If an individual lives in a badly malarious country and takes five grains of quinine daily he will always have some quinine circulating in his blood. When an anopheles mosquito injects malarial parasites into his blood under these circumstances the parasites are at once killed by absorbing the quinine so poisonous to them. Malaria always has to be gotten by the mosquito from some human being harboring the malarial parasite in the blood. It is important, therefore, to keep at a distance persons who are suffering from malaria or who are carrying the parasite in the blood. The native is very extensively infected with this parasite, though he is not always made sick by it. Long exposure to malaria has given him more or less immunity to the disease. The parasite is still more commonly found in the blood of native children. It is important, therefore, to keep native habitation at a distance from the living quarters of the whites so that the mosquitoes about the white quarters may not become infected.

Any one of these measures if carried out perfectly would protect the individual and eradicate it from any given locality. Humanly speaking, it is impossible to carry any one of them out in its entire perfection. If they are all adopted and carried out as carefully as the

local conditions will allow, any individual anywhere can protect himself from malaria, and any locality, no matter how unfavorably situated, or how badly infected with malaria, can be freed from this disease. This statement is not based upon theory. It has already been accomplished many times, in many different parts of the world, by many different men. In Havana, Cuba, the methods mentioned above were first worked out and put into practice. Havana at the time referred to was a city of 250,000 inhabitants. Their deaths from malaria for the ten years preceding 1900 had varied between 400 and 800 per year. Yellow fever, another mosquito borne disease, had continuously existed in the city for the previous hundred and fifty years. The anti-mosquito measures outlined above were put into effect during the year 1901. The results were evident before the end of that year. For the last four years the deaths from malaria have fluctuated between ten and twenty for the whole city and there has been no yellow fever at all.

I at present live in a small village, Ancon, at the Isthmus of Panama on the banks of the canal. Fifteen years ago it was known as the most malarious spot in the Western Hemisphere. More Europeans had died here of malaria, probably, than at any other place in the world. The French, between the years 1880 and 1889, brought a large force of men here and attempted to build a canal. It is estimated that they lost by death during that period, each year, out of each thousand of their force, about 240 men. The measures outlined above were put into effect in 1904. At present in my locality we have no malaria and no mosquitoes of any kind. In this little village, Ancon, is located the largest hotel on the isthmus. It is filled all the year round with some 200 European and American visitors who have come to see the canal. They sit out on unscreened galleries till all hours of the night. Fifteen years ago to have sat out in this same locality for two hours after sunset would have meant almost certain death from either malaria or yellow fever. Yet no one now in this hotel is bitten by mosquitoes or contracts yellow fever.

We have had on the Isthmus of Panama during the last six years an average of 5,527 white American employes. Their death rate from disease during 1912 was 3.25 per 1,000, based on an average of 6,159 men for that year. And from malaria during the same time we had only one death among these men. These 6,159 Americans had with them during 1912 4,502 women and children; among these women and children only two (children) died from malaria. These 10,661 men, women and children are fully as healthy and vigorous in appearance as a similar population living in healthy portions of the United States.

Considering our total force: In 1906, when our malarial rate was highest, we had on our rolls an average of 27,286 men. From this 27,286 men we took into the hospitals during the year 821 from each thousand on account of malaria, and had in the whole force during the year 224 deaths from malaria. During the year of 1912 our average force was 50,893 men. The admissions to hospital for malaria during this period were only 110 per 1,000, as against 821 in 1906. The deaths from malaria among these 50,893 men were 14, as against 224 among the 27,280 men in 1906. The total death rate from disease in the whole force was in 1906, 41.24 per 1,000; during 1912, 6.37 per 1,000. These results were accomplished in an excessively malarious locality situated only 8 degrees from the equator with an average force of 43,256 men collected rapidly and quickly brought to the locality. The anti-mosquito methods above described were used in bringing about these results. What has been accomplished as to malaria at Panama can be accomplished anywhere else if the same measures are carried out. A naturally healthy region such as the Mazoe Valley can be much more certainly controlled than such a region as Panama.

Blackwater fever in this section of Rhodesia is causing a good deal of anxiety to the au-

thorities and some alarm among the settlers. In discussing the matter with the people I met in this district, I found that it was a prevalent idea that blackwater fever was a new disease, peculiar to this district, and that nothing was known about it. Blackwater fever is a well-known disease in almost all parts of the world in which pernicious malaria prevails and in which the white man lives. We have it in the southern parts of the United States and have had it during the last six years at Panama. Among an average population of 5,527 Americans, who carefully observed anti-mosquito measures, we have had nine deaths from blackwater fever. Among an average of 6,552 Spaniards, who paid, as a rule, little attention to anti-mosquito measures, we have had forty-one deaths from this disease. Both in the United States and at Panama the methods and conditions that have been successful in the case of malaria have also been successful in the case of blackwater fever.

It was urged by several with whom I talked that as we did not know the germ of blackwater fever we could not do anything to control it. Sir Patrick Manson, probably the greatest living authority on tropical medicine, has very clearly stated in his Bulawayo address the present state of knowledge on this subject. While we do not know the germ that causes blackwater fever, we do know the measures that have prevented and controlled it. It does not follow that we will be any more successful in preventing blackwater fever when we do know the germ than we are at present, when we do not know it. We do not yet know the germ of yellow fever, yet it is the disease of all diseases over which we have most sanitary control. We do know the measures which will prevent and control it. Havana and Panama have been the home of this disease for generations. By carrying into effect anti-mosquito measures, Havana was cleared of yellow fever within a year, and at Panama, due to the same measures, we have had no yellow fever since 1906.

The question was also raised as to the establishment of a laboratory of original research, bearing more particularly on human diseases, and blackwater fever in particular. I think it would be a very wise and profitable thing for the government of Rhodesia, and for all other governments, to pay just as much attention to human disease as they do to animal disease. But it would be a very unwise thing in this government, and for the people, to wait till they get more knowledge of blackwater fever by research. By all means let us get all knowledge that we can. But while we are seeking this knowledge do not let us wait idly with folded hands. While we are waiting we can prevent these diseases by the well-known methods which have been so ably urged by your health officer, Dr. Fleming, and have been, and are being, successful in other parts of the world.

Personally I am inclined to think that blackwater fever is a phase of malaria. But whether it is due to the malarial parasite or a specific germ is of no more practical sanitary importance than it is at present for us to know the specific germ of yellow fever. In both cases we know the measures that will prevent. This is the great point in practical sanitary science.

If the same principle as is contended for by some here in Rhodesia, that is, research to determine what blackwater fever is before applying methods that are known to control this disease, was applied to the industrial world, progress would be slow. For an example, we do not know what electricity *is*, yet the control of and the application of this force in the industrial world is of ever-increasing importance.

The question was many times raised as to the desirability of the government financially assisting recent settlers. The idea seemed to be that malaria and blackwater fever might thereby be prevented. I doubt if upon the whole such a measure would be sanitarily serviceable to the new settler. Suppose two or three hundred pounds were loaned to such a man for putting up a comfortable house and fitting such a house with wire netting. He

would no more appreciate the necessity for anti-malarial work than do some of the present settlers. The netting would soon get into disorder, doors and windows be left open, mosquito breeding go on about the house, etc. His condition would not be a bit better from a sanitary point of view than would be that of the unassisted man in the mud hut. This mud hut can as easily be made mosquito proof as the well-constructed house. If the government has money to expend on sanitary work among the settlers, my opinion is that it had better first be expended in a campaign of education among these people to impress upon them that the mosquito conveys malaria and the details of how this can be prevented. If they were thoroughly convinced of this, they would soon protect themselves. If they were as sure that the mosquito conveyed malaria as they are that the bite of the cobra conveys a deadly poison, there would soon be as few mosquito bites as there are cobra bites.

Dr. Fleming has suggested the advisability of the government's selling quinine in malarious districts at cost price. This would be a most excellent measure, and I strongly recommend it. The Italian Government has used it on a large scale with the best results. From a sanitary point of view, they might even go further and in these same districts sell wire netting at cost.

In a country district of the kind under consideration being settled by people of small means the anti-mosquito measures should be considered in relation, first, to their relative importance, and, secondly, in relation to the ability of the people concerned carrying them out. With these two considerations in mind, I would urge upon them, first, the taking daily of a prophylactic dose of five grains of quinine, both themselves and all the natives in their immediate employment; second, to make the dwelling house completely mosquito proof. The present hut, with a little care, can be rendered completely inaccessible to the mosquito. Thirdly, clear and drain within two hundred yards of the dwelling. Fourthly, the use of a properly constructed mosquito netting over the sleeping place. As the settler becomes better established financially he can extend and improve these measures as outlined in the early part of this paper. These four measures, if carefully carried out, will protect him against both malaria and blackwater fever from the time he enters the district.

The government will continue the present campaign of education as at present begun by the health officer, Dr. Fleming. Every week or two some popular article on malaria and anti-mosquito work should be mailed to every settler in the malarious districts. Over such a large area of country no sanitary work can be successful against malaria until the people believe in its efficacy. Education is the great means for bringing this about. It might be wise in this educational process for the Health Department to employ a man familiar with anti-malarial mosquito work, who would constantly travel through the district, explaining to the people details which they had overlooked. If the people can be so educated that they will thoroughly carry out these measures, I feel confident that malaria and blackwater fever will at once begin to decrease in these districts, and within a few years disappear, as they have in other parts of the world.

As an example to the rest of the community I would urge upon the municipality of Salisbury that it free itself from mosquitoes. It cannot fail to have a bad effect upon a campaign of education to have a farmer from the malarial districts come to the capital and find mosquitoes as numerous as they are. The city is so favorably situated that very little effort on the part of the municipality would bring this about.

Respectfully submitted,

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ARTERIAL HYPERTENSION AND HYPOTENSION IN MEDICINE AND SURGERY.*

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During the past few years the study of blood pressure has spread with much rapidity and is now recognized as indispensable as a means of physical diagnosis.

I shall endeavor to give you some of my own experience in this line of work, and, in a general way, the experience of the clinicians as found in the standard medical literature of the present time.

I am sure all of those present recognize the great importance of the early detection of a pathological blood pressure and the importance of correcting this condition, if possible.

I feel that it is unnecessary to take up the study of the primary consideration of the circulation and the changes in the economy of the body which bring about this condition. We shall, therefore, treat that part of the subject briefly, or consider the more practical side and the daily observations as are experienced in practice. A few years ago the workers along this line believed that high blood pressure was a condition and disease occurring in those individuals past middle life and was considered more a disease peculiar to old age.

We now know that high blood pressure and low blood pressure is not a disease, but a condition which may affect individuals at all ages and under various circumstances of life. Changes in tension may be brought about at different times of the day, influenced by the state of mental attitude, form of diet, emotions, either cheerfulness or sadness, rest, exercise and all those factors which have an influence on the tension of the arterial walls.

Arterial tension is only a symptom and not a disease, yet it is one of the greatest importance in the study of disease, for by it, in many conditions, we are enabled not only to make the diagnosis positive, but also the prognosis as well. The treatment of many diseases and conditions may be governed almost exclusively by the variation in tension. When we speak of hypertension, it usually means the radial systolic tensions as registered by some form of the many makes of sphygmomanometers, indicating a tension above the normal.

Hypotension being a diminished tension below the lowest point of the diastolic curve, we have the two fixed points which we term the normal high tension and the low tension, and any rise or fall above or below these fixed points are termed hypertension and hypotension.

The normal standards fixed as to the systolic pressure, therefore, is important, that we may decide as to what is hypertension.

In normal, healthy individuals from 15 to 30 years of age, 115 mm. is the standard for normal tension. From 30 to 40 years, 127 mm. From 40 to 50 years, 130 mm. Any tension over 150 mm. is regarded as pathological.

For some time but little attention was given to the diastolic tension, but we know that of the two the diastolic is the more important. The diastolic being the constant tension with which the arterial system must bear, the strain is greater than in the systolic.

We find that the literature on the subject of the diastolic tension is quite limited. Yet those who have given this matter careful consideration and study have been impressed with the number of cases with a constant tension below the normal in the diastolic with a corresponding rise in the pulse pressure.

I believe that many, in their study of the hypertension cases, have neglected the study and significance of the diastolic and pulse pressure, because the method of observation of the diastolic tension has been so deficient. The auscultation method as now practiced makes it

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comparatively easy to secure an accurate diastolic measurement.

The diastolic tension shows the peripheral resistance in the arterial system and the difference between the systolic and diastolic will indicate the pulse pressure. Therefore, the pulse pressure will register the excess force which the heart must exert to overcome the peripheral resistance, indicated by the diastolic tension.

In other words, the diastolic tension registers the resistance which the heart overcomes in forcing the blood through the arterial system and the pulse pressure indicates the extra pressure the heart is undergoing in maintaining the circulation.

Therefore, the pulse pressure becomes of great value in the study of the patient's true condition, and this can be accomplished only by knowing the true diastolic tension as well as the systolic tension. Again (1), "as the diastolic pressure measures the peripheral resistance, it is a better index of hypertension than the systolic tension. A sustained diastolic tension of from 100 to 110 signifies hypertension."

It is therefore important that we study the diastolic tension and that there is maintained a normal pulse pressure. If this is done, vasodilators will not be so frequently used to lower the systolic pressure which can only result in harm to the patient.

In a normal individual the tension may be increased very much above the normal without any apparent pathological condition. Under excitement and strenuous exercise, we have noted the measurement as much as 20 mm. above the normal, which would soon return to the normal during rest. The tension will, in all cases, depend upon the state of the peripheral blood vessels and the strength of the heart.

If the high tension should continue very long, then there will be produced a lessening of cardiac energy, and a very material damage will be produced in the muscular walls of the arteries. Therefore, if we recognize the condition sufficiently early and before degenerative changes have occurred, much benefit has been gained for the patient. This, if detected and corrected, will prevent the more chronic and permanent changes.

To estimate correctly the tension of the blood in an individual, the measurement should be taken several times and under the most favorable circumstances. When there is some doubt as to whether the hypertension is functional or organic, the patient should be put to bed and all food restricted for eighteen to twenty hours. After this fast, take the tension. If the condition is organic, there will be but little change in the tension; if functional, the tension will be normal. This is frequently of value where we wish to exclude any influence upon the heart from distension of the stomach or any psychic effect which might be present.

After we have determined, without the possibility of a doubt, that the patient has an abnormal blood tension, then we can begin to study the possible cause for such a condition. The experience of the physician will be of much assistance in ascertaining readily the possible cause of the high tension as coming from some pathological condition.

With a continued systolic tension of over 200 mm., we are justified in suspecting some form of nephritis. If the systolic tension is high and is accompanied by a low diastolic tension, we may suspect an aortic regurgitation. If we find, on repeated examinations, a continued low tension in an individual without any other clinical symptoms, we are justified in suspecting a beginning of tuberculosis. This evidence is often useful in making a diagnosis of tuberculosis long before there are any other clinical signs or even of any evidence in the lung. This is now regarded as one of the earliest and most helpful signs in making an early diagnosis in tuberculosis. Under such condition, the susceptibility of the individual is at least sufficient reason to warrant us in throwing around him all the precaution pos-

sible, and I believe if closer attention was given to many of these patients we would be able to give them valuable aid long before there were any other manifestations of the approaching disease.

Therefore, I desire to emphasize the fact, that in every examination, no matter how trivial the condition may seem to be, a careful measurement of the blood tension for systolic, diastolic and pulse pressure should always be made, and with as much interest and caution as you would listen to the heart or take the temperature of a suspected fever patient.

The use of the sphygmomanometer should be a routine in every examination, for by it there are often revealed conditions which, but for such an examination, would not be suspected until results were disastrous to the patient.

We often find a disordered blood pressure in patients with such symptoms as transit dizziness, indigestion and bloating after meals, distension with gas, biliousness, slight headache, especially increased by any mental effort or worry, insomnia, more so in the after part of the night, hysterical seizures, some forms of so-called migrain, neuralgia, ringing in the ears and tingling sensations in the extremities.

The use of the sphygmomanometer in such cases will be of much aid in making the correct diagnosis of the condition. In many cases of neurasthenia and some of the psychoses, the correcting of an abnormal blood pressure will produce most brilliant results. I have made it the rule for the past eight years to always take the blood tension in every case which comes under my observation, no matter what the complaint, and in many cases I have been put on the trail before getting any symptoms from the patient that would indicate the condition.

In the study of blood tension in some of the acute infectious diseases, such as typhoid fever, there is a marked hypotension which is present at the beginning of the disease and does not disappear until the case is convalescent. Therefore, the careful recording of the blood tension in these cases is of the greatest importance. The blood pressure will give better indication as to the progress the case is making than any other method. Any change for a lower tension would be of assistance in differentiating from hemorrhage and perforation.

If there is hemorrhage, even of a slow nature, the increased hypotension will indicate it. As soon as the hemorrhage is arrested, there is a rapid rise in the tension to its former level. The rapidity of the fall and the extent of the hemorrhage will be indicated by the hypotension. There is no other method which will as speedily notify the physician of the condition of the patient under such circumstances.

In typhoid cases with perforation and peritonitis, there is an early rise in the tension, which will fall later when toxemia develops.

In pneumonia the tension becomes of great value when compared with the pulse rate. As long as the tension is kept above the pulse rate there is favorable indication that the patient will recover. However, if the tension is going down and the pulse going up, there is necessity for immediate action, if the patient is to be saved.

Death in pneumonia is probably not due to cardiac failure, but due to the toxic paralysis of the vasoconstrictor center resulting in vascular stasis. The state of the tension in such cases is the vital issue.

In (2) tuberculosis, hypotension is present from the earliest symptoms and increases with the extension of the disease. Any improvement in a case of tuberculosis will be shown at once in a rise of the tension. In those cases where the disease has been arrested or cured, the tension returns to the normal. Therefore, the use of the sphygmomanometer becomes of great assistance as to the prognosis in the treatment of tuberculosis.

In the heart cases, much valuable information is afforded by the measurement of the

blood tension. We frequently find an individual with a high tension and enlarged heart without any valvular disease or endocardial murmur. In this connection, I wish to say that in every examination of the heart careful palpation and percussion should be practiced, for the borders of the heart are more important than the findings of conditions by auscultation.

There are signs of poor circulation when with a high systolic tension the diastolic tension is relatively low. Under such conditions, with insufficiency on the part of the heart, it is of the greatest importance that the cause of the hypertension be detected early—more so than in any other form of heart trouble. If such a condition is recognized early, it is possible to adopt measures which will keep the patient in a safe condition for many years; otherwise, it will surely result with serious trouble.

In aortic regurgitation, there is present a systolic hypertension, with a low diastolic tension. This exceptionally low diastolic tension being, in the majority of cases, as low as 60 mm., with its characteristic pulse pressure, is sufficient evidence alone upon which to make the diagnosis.

In chronic myocarditis, the blood tension will indicate this disease before there are any other symptoms present. The study of the tension in this disease is of greater value than any other of the cardiovascular diseases. Myocarditis is a condition in which the diagnosis is not easily made, especially if the case has not progressed far enough to affect the health of the patient. It is in such cases that the taking of the blood tension will give us much valuable information.

The systolic tension may not be above the normal, but a careful reading of the diastolic and pulse pressure will reveal the strength and normal reserve force of the heart. The more extensive the changes in the heart muscles the greater will be the pulse pressure.

So (3) misleading may this condition be that after taking the systolic tension, and finding it practically normal, we may conclude that the patient is in good health. However, upon taking the diastolic tension, we find it to be high, even up to 110 mm. Then we know that the patient has had a much higher systolic pressure and that the heart muscles are already undergoing degenerative changes and cannot maintain the hypertension which should be present. It is from such examination that we can estimate accurately the pulse pressure and know the true physical condition of the patient.

In cerebral hemorrhage there is a marked hypertension, with slow pulse. In embolism there will be a marked hypotension. Therefore, by taking the blood tension we secure a valuable aid for differential diagnosis in an unconscious patient where other symptoms are not clear.

Hypertension in kidney disease, when reinforced with the renal findings, is the rule in nephritis. However, in tuberculosis of the kidney, with nephritic signs, there is a marked hypotension. The taking of the blood tension is of valuable assistance in making a differential diagnosis of nephritis and tuberculosis of the kidney.

The taking of the blood pressure affords us important assistance in estimating the intensity of pain. In Germany this has been made an important study, especially in connection with the industrial insurance. In experimenting with the effect of the faradic current on patients with normal sensibility, the tension rose from 10 mm. to 15 mm.

During (4) the gastric crisis of tabes, the pressure will rise from 170 mm. to 200 mm., and in one case as high as 210 mm. However, in these cases the normal is quickly reached when the attack subsides.

Janeway reports a case in a woman of 28 where the blood tension was from 70-80 mm. between the paroxysms of pain, but during a very severe attack rose as high as 240 mm. The taking of the blood tension is, therefore,

of valuable assistance in not only estimating the degree of pain present, but as a means of making a diagnosis of the condition present.

In many cases of hysteria, in which there seems to be much pain present, the taking of the blood tension will reveal that the tension is unaffected.

In arteriosclerotic condition of the abdominal arteries there is often present a dull, aching pain. The taking of the blood pressure will indicate the cause. The result of the increased tension from this condition is due, doubtless, to the stimulation of the vasomotor nerves, that is, the vasoconstrictor part, and is produced in the splanchnic area principally.

In obstetrics the labor pains cause a marked rise in blood tension. It increases with the severity of the pains and continues to increase until the child is born, after which it returns rapidly to the normal. I do not believe there is anything in the practice of obstetrics of greater importance than the careful and systematic taking of the blood tension during labor. The tension should not only be taken during labor, but should be taken at intervals during the term of pregnancy, for in this way the physician is informed of the condition of his patient better than in any other way, and may be able to correct conditions which, but for such precaution, would result with disaster during labor.

Tinnitus is a very troublesome condition in elderly individuals, and this form of tinnitus is produced by a hypotension, causing an insufficient supply of blood in the vessels of the organ of auditory sensation. In other individuals there is often an annoying tinnitus, produced by a hypertension.

The taking of the blood tension in all obscure, and especially those cases which have been heroically and systematically treated and have not received any benefit, will reveal an altered blood tension of either a hypertension or hypotension.

I have observed in a number of cases of intestinal toxemia, with marked tinnitus, that there was a rise in blood tension, which was almost immediately relieved upon the clearing of the intestinal tract. My observation of a number of cases, not yet past middle life, who have tinnitus, is that in the majority of these cases it is due to disturbance of the blood tension and has its origin from some condition in the digestive tract.

The removing of the toxic condition by a thorough cleaning of the intestines by repeated doses of castor oil will, in many cases, produce the most happy results.

Many drugs, when given in the treatment of diseases, may have a marked effect on the blood tension and may be productive of much harm, unless care is taken in watching the blood tension.

Morphine has little or no effect upon blood tension. Chloral produces a marked hypotension and is a dangerous drug in patients who have already a low tension.

Salvarsan is another of this group of depressors. The intravenous injection of salvarsan should not be given to a patient with low blood tension. To avoid disastrous results the blood tension should always be taken before giving salvarsan in any form. In those cases of marked hypotension it should not be given under any circumstances.

The iodides act as vasodilators to some extent and will produce a depression in blood tension, especially in the early cases of arteriosclerosis. In the advanced cases the iodides seem to have but little, if any, effect.

Many of the glandular extracts have a marked effect on blood tension. The extract of the pituitary gland produces a rapid rise in blood tension. The effects are immediate and more lasting than the results from the adrenalin. However, the continued use of the extract of the pituitary gland produces a depression of the tension, possibly from the accumulation of a toxic saturation.

There are many drugs which will cause a reduction in blood tension, but they have effect only by causing a dilatation of the arterioles

and capillaries, which, at the most, produces a temporary reduction of the high tension. And in many cases this effect is only secured by giving toxic doses.

I, therefore, regard the use of drugs in the treatment of hypertension as not only a dangerous procedure, but positively contra-indicated in the majority of cases. Unless the diastolic and pulse pressure is known, it is positively dangerous to give any drug.

Having considered, to some extent, the hypertension and hypotension in medical conditions, together with the effect of drugs, let us consider this condition in surgery and anesthetics, where the study of hypertension and hypotension may be useful, if not absolutely a necessity.

During an operation there is nothing which will give to the surgeon more reliable information as to the condition of the patient undergoing the operation than the repeated measurement of the blood pressure. By the use of the sphygmomanometer the surgeon can also familiarize himself with the effect of shock on the patient by the manipulation of the internal viscera. Unnecessary (5) or frequent manipulation of those organs or vessels or nerves which will cause a rise or fall of the blood tension will act as a stimulant, and, if repeated too frequently, will produce exhaustion, so that the patient, at the most critical moment, may seem to be doing well, and, without warning, have a serious drop in pressure. The measurement of the normal systolic pressure the day before the operation is essential for a record of the vital resistance of the patient. The pressure should be taken again just before the operation, and at frequent intervals during the operation. After the operation and before the patient is removed from the table, if there is any lowering of the tension, the immediate attention will be of great time-saving for the patient's welfare and the surgeon's comfort.

Nitrous oxide produces a rise in blood tension and may be a source of great danger when administered to a patient with hypertension. Oxygen, administered with nitrous oxide, relieves this danger to some extent and should always be given in conjunction.

Before the administering of any anesthetic every case should have a careful measurement of the blood tension. We know the effect of the anesthetic is exerted chiefly on the circulation, and the ability to stand an anesthetic will depend entirely upon the strength of the vasomotor and cardiomotor system to maintain the blood tension at its normal level. Therefore, the sphygmomanometer should be used at intervals during the time of the administering of the anesthetic, for only by such methods can the operator be familiar with the condition of his patient.

The blood tension will give warning long before there are any other symptoms of danger in either the pulse or respiration. The anesthetist places himself in a position to be criticized if he neglects the precaution to take the blood pressure before the operation and at regular intervals during the operation.

If the blood pressure should fall as low as 100 mm., the danger line has been reached and the operation should be stopped and the saline given. The blood tension should be taken immediately after the operation is completed and before the patient is taken to his room.

If such precautions were taken there would be fewer cases of collapse after the patient has been taken to his room. Again, never, under any circumstances, should a saline be given without a careful measurement of the blood tension by the use of a reliable sphygmomanometer. Ether has but little effect on normal blood tension, as has been noted by a number of experimenters. Therefore, the earliest indication of approaching danger will be indicated in the lowering of the blood tension. At the beginning of the administering of any anesthetic there is a rise of the blood tension, produced by the stimulation of the cardiomotor and vasomotor centers through excitement.

Chloroform produces a very marked depression in the blood tension. In those patients with hypotension there may be a sudden death when but little chloroform has been given. It is here the use of the sphygomanometer may give warning which will prevent disastrous results.

We know that normal blood pressure depends upon the vasomotor system, the strength and energy of the heart, the elasticity of the walls of the vascular system, the volume of blood circulating and peripheral resistance. Anything which will break the harmony of this mechanism will alter the blood tension.

The subject of hypotension has been very much neglected in medical literature, being regarded more as a sequel to some disease in which the vasomotor tone is impaired. Yet those who have made a study of the blood pressure cannot have failed to note the frequent presence of cases of hypotension in individuals who have no lesion which would account for the presence of the hypotension.

While hypotension may be less important, as compared with hypertension, in damage and destruction to the organs of the body, yet the study of hypotension as regards life is equally as important, if not more so, than hypertension. I believe that many of the sudden deaths which are attributed to so-called heart disease and apoplexy are due to hypotension. Is it not reasonable to believe that this condition may have as its origin the result of some faulty metabolic disorder, resulting in the impairment of the ductless glands?

The probable cause of a hypertension is the frequent and over-stimulating of the vasomotor center, followed with a corresponding depression. This interference of the normal mechanism finally brings about degenerative changes in the cardiovascular system.

This repeated relaxation and stimulation of the cardiovascular system will result in an insufficient supply of normal blood to the ductless glands and the various organs of the body. This insufficient blood supply will produce an error in the normal function of these organs and later, if continued, will cause an alteration in the structure of the organ itself. Is it not probable, then, that this deficient renal circulation is the cause of the disease of the kidney? Is it not more plausible that the condition may be brought about by some metabolic waste products which causes a deranging of the circulation and a faulty function in the kidney?

If all the glands of the body and the organs are to be normal and in healthy activity, then there must be maintained a constant level of efficiency in the circulation, and any interference with this normal efficiency will disarrange the whole harmony of the healthy function of the organs of the body.

I believe the cause of hypertension of the average individual of the present day to be the result of the excessive use of stimulating foods, especially the abundant use of proteids, these foods causing the circulation, after the immediate effects of stimulation has passed, to undergo a depression. This, repeated for several years, finally, through the altered blood supply to the ductless glands, brings about a faulty derangement of their normal function. The harmony is broken, their function is impaired.

We know that the function of the ductless glands have a very marked influence on the formation of the blood, also that the blood pressure is greatly influenced by them. If the ductless glands are not properly nourished they will deteriorate and their function will be greatly impaired or lost altogether. If they are over-stimulated by food products, this continued over-activity will give rise to exhaustion and there will be degenerative changes, with inactivity. The metabolic and nutritive processes of all the organs and tissues of the body are dependent upon the proper function of the ductless glands.

As we grow older these ductless glands gradually undergo impairment, as necessarily do all the tissues of the body. This diminished activity of the ductless glands may be further

impaired by the improper and over-supply of those food products which, through their stimulating effect, produce exhaustion of the glands.

The now accepted theory, that the probable cause of hypertension is by the excessive stimulation of the central vasomotor constructing mechanism, from some form of poison or toxic material within the blood stream, is, of itself, suggestive of some relation between the disturbance of internal secretion and the vascular tonus.

I believe that we can go further and say that the beginning of the hypertension has its origin from some impairment of the normal activity of the ductless glands, and this is largely brought about by the habitual use of overstimulating and improper foods.

If this hypothesis be correct, then the prevention as well as the treatment would be the adopting of a rational system of diet. I have practiced this line of treatment in a large number of cases during the past eight years, and I have not failed to note a decided improvement in all cases when the treatment was begun early and systematically followed.

Therefore, the early detection of a beginning of hypertension and avoiding the excesses which over-stimulate and impair the ductless glands will be the best prevention and the best treatment for the advanced cases.

In the management of hypertension cases, I disapprove of the use of vasodilators. If the tension is above the danger line and it is imperative that immediate action be taken to prevent hemorrhage or acute dilation, then there is nothing which will give more immediate or lasting effect than to resort to venesection.

In all cases with marked hypertension the patient should be put to bed, and the eliminative forces should be increased and all fluids restricted. A low proteid diet should be ordered and all those conditions which are intensifying the hypertension actively treated.

For the management of those cases of hypertension where the danger line has not been crossed, a select diet which is nutritious, but low in animal proteids, should be given. Massage, selective hydrotherapy, and a systematic form of exercise, preferably taken in the open air, should be advised.

A visit for several weeks to some of the Spas, where there is pure drinking water, with sedative scenic environments, where the patient is free from the cares and worries of an active business life, the abstinence from all excesses, such as alcohol, tobacco, coffee, etc., will be found to produce the most satisfactory results.

Where circumstances are such that the patient cannot leave his home, there is nothing which is productive of better results than the use of the high frequency electric light bath and the giving of some of the light mineral waters, of which I regard Poland Water as the best.

The care of patients with either hypertension or those with hypotension will depend upon the condition in each case. All cases should be treated individually and the cause detected, if possible. The success of the treatment will depend upon the accuracy with which the diagnosis has been made.

The length of our lives will depend, in a great measure, upon the heart and blood vessels. If we lead a life conducive to healthy old age, which may be accomplished by the adopting of a proper diet, the avoiding of excesses, taking regular and systematic exercise after middle life, have frequent measurements of the blood tension, especially after we have passed the fortieth mile post of life, watch for any rise in the blood tension and speedily correct it, the arteries may be kept elastic and youthful for many years, even until the allotted threescore and ten. Then and only then may we say we are as young as our arteries.

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THE IMPORTANCE OF THE EARLY RECOGNITION OF PARESIS.

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Although in acute form syphilis is most widespread and damaging to the entire organism and more or less difficut of diagnosis, it is most disabling and the symptoms are still more vaguely related to their true origin when the disease has assumed chronic form. Chief among these chronic manifestations are tumors, tabes dorsalis, and paresis. Chief among these in consequent deterioration of the whole being, in the peculiar wreckage to self, to others, to individual and corporate fortune, and hopelessness of outlook, stands paresis. It constitutes a distinct disease entity, and no other malady, perhaps, brings about such complete havoc to the entire individual.

Paresis, dementia paralytica, or general paralysis of the insane, is an affection chiefly of the central nervous system characterized by inflammation and degeneration of the brain and cord and their investing membranes, manifesting itself by markedly increasing and disabling motor, sensory and mental phenomena. Without exception it causes physical disability of some degree, and when fully established, the most complete mental disorganization. It has been estimated that, at present, there are confined in institutions in the United States probably no less than eight thousand paretics, and paresis is probably responsible for ten or twelve per cent of all our insane.

For many years medical men were divided into two factions with reference to their belief as to the cause of paresis. One group asserted that the disease was always due to syphilis; the other group contended that syphilis played no essential part in the causation of the malady. Until recently, however, we were ignorant of the cause of syphilis, but in 1905 Schaudinn discovered the spirochete, and a little later Metchnikoff and others established its true relationship to the disease. Only last year Moore and Noguchi found the same organism in the brain of paretics, and, since that time, paresis has been looked upon simply as a form of syphilis of the nervous system. Yet there remains about the malady many features not at all clearly understood. For instance, the disease in the South, at least, is comparatively rare in the negro, amongst whom we know syphilis is quite rife. It is true, too, that syphilitic women are much less liable to paresis than syphilitic men and oftentimes we seem to have reason to doubt the value of the most active measures as preventive of paresis. But most of all are we puzzled to know why the syphilitic organism should lie apparently dormant in a seemingly healthy individual for a number of years and suddenly by unprovoked activity give rise to a rapidly fatal disease. We are wholly unable to understand, too, why only two or three per cent of syphilitics become paretics.

The onset of a typical case of paresis is often so insidious that neither the patient nor members of the family realize that he is becoming impaired. Initial depression is not infrequent, with increasing irritability, forgetfulness, dreaminess, inattention, lessening powers of concentration, and an associated sense of increasing physical fatigue. The individual becomes noticeably careless in attire; the finer feelings gradually decay, he interrupts others in conversation without apology, tells lewd jokes, swears openly, and often becomes indifferent about the character of his associates. The most upright and moral citizen may undergo the most radical and distressing change in personality. Absolute abstemiousness, not infrequently, gives way to shameless drunken-

ness. The pillar of the church and the father of a large family may openly visit houses of ill-repute, or consort with women of low character. Grandiose delusions frequently develop. A clerk on a small salary may plan to build a great railroad, or to open a line of airships; wealth is spoken of in millions and trillions and quadrillions. Intellectual egotism is often unbounded; the man may assert that he is the smartest individual that ever lived; the Son of God, co-equal with Christ Jesus; the husband of Queen Victoria, the father of thousands of children, the Ruler of the Universe, he was never born and can never die. Physical signs are not infrequently present even before the manifestations of mental disorder. In the beginning there are often to be found marked pupillary disturbances, contraction, unequal pupils, irregular margins and reaction to light and to accommodation may be sluggish or abolished.

In practically all cases of paresis there is marked pupillary disturbance of some kind. Late in the disease blindness is not uncommon. Tremors of the lips are often present; a certain immobility and an abnormal, ironed-out facial appearance develops during the course of the disease. The protruded tongue is often tremulous and awkward in its movements. Early in the disease there may be difficulty in speaking certain words and a peculiar singsong in the voice generally develops. At first, all the deep reflexes are likely to be increased; later they tend to disappear. Difficulty in coordinating finer muscular action is frequently noticed, both by the patient and his friends. He buttons and unbuttons his clothing with conscious difficulty, and the handwriting becomes wavering and irregular, typifying visibly what the speech portrays to the ear. Associated muscles not only refuse to act in harmony, but increasing muscular weakness keeps pace with the deepening mental enfeeblement; the legs and the arms lose their ability to do what is expected of them, and sooner or later the patient is brought to bed, a mental and physical wreck. Gradually the delusions subside, dementia increases, memory fails, words are forgotten, the faces of dear ones are no longer remembered; articulation becomes impossible, physical weakness, in spite of gluttonous eating, increases, and convulsions often occur. The patient cannot feed himself, he is unable to get out of bed, the sphincters lose their grip, unbelievable filthiness comes about, bed sores develop, and the patient has at last reverted completely to that kingdom of the lower animals from which all of us are said to be sprung. As a rule, within three years after the onset of the disease death mercifully terminates the distressing situation.

The so-called classical type of the disease, however, is not the only form it may assume; indeed, it is not the usual type. Often, the first symptom to attract attention is a frank epileptiform convulsion. The individual while engaged in his usual work may fall down in a mere faint, and the unsuspecting physician may unguardedly attribute the syncope to overeating, overheat, or to alcoholic indulgence, especially if its odor be present. A middle-aged man recently came under my care in early paresis in whom the first symptoms was an attack of fainting while he was at his usual duties. The diagnosis of epilepsy may be made, but epilepsy seldom develops in middle life, nor is fainting likely to occur for the first time at this period. Neurasthenia or nervous prostration, that medical blanket that covers a bed almost as large as hysteria, is another diagnosis sometimes made. Many of the early symptoms, too, justify thought of neurasthenia, e. g., the feeling of weakness, insomnia, loss of attention and concentration, forgetfulness and introspection, but such an error in diagnosis is extremely calamitous. Recently I have seen a man in whom diagnosis of nervous prostration was made two years ago, but in whom all the physical and mental manifestations of paresis developed, and in whom the blood Wassermann was found to be positive. The fact that he was a minister

might have prejudiced the early examiner against the diagnosis of this disease. In paresis, developing in older subjects with hardening arteries, the trouble may be attributed to arterio-sclerosis. The term melancholia is sometimes mistakenly applied to the depressed form of the disease in its earlier stages. Dementia parecox showing itself for the first time at a rather late age may also cause confusion. Other organic diseases of the central nervous system may evoke symptoms simulating those of paresis. The early symptoms of the disease are so variable that the individual may present himself to this or to that kind of specialist, consequently it behooves every medical man to be on the alert for these symptoms, for it would be almost criminal to make a diagnosis of a benign condition when the real trouble is paresis—a disease until recently though to be even more terrible than death itself.

Fortunately, one is no longer compelled to depend solely on the mental symptoms and physical signs for diagnostic data. Within the past few years, the pathologist has come to our aid. With associated physical and mental disturbances a positive Wassermann reaction of the blood serum or the spinal fluid points almost certainly to paresis. Likewise, abnormal increase of lymphocytes in the spinal fluid, or increase of globulin in the spinal fluid is significant. By one, or, better still, by all of these methods, the physician may be almost tempted to venture a diagnosis of paresis before the disease is clinically manifest.

Is paresis curable? Can it be prevented after syphilis has been contracted? The answer to the question of the curability of the established disease rests, as yet, in the language of Homer, on the knees of the gods. We do not know. Personally, I am quite doubtful. Is there any known method by which a syphilitic can be assured that somewhere between the ages of thirty and fifty he will not develop paresis? Even in spite of recent improvement in the method and the technique of treatment of syphilis, and in spite of the most vigorous and rational treatment of the disease in its earliest stage, no physician today is justified in assuring any syphilitic that he will not have paresis.

Since the specific cause of the disease is now known, however, it can be treated much more intelligently and the treatment can be controlled much more rationally than formerly. Salvarsan or neosalvarsan, in combination with the older methods, make treatment much more satisfactory. The virulence of infection as indicated by blood serum and spinal fluid reaction, enables one to measure dosage and frequency and length of treatment. When blood serum and spinal fluid that formerly gave a strongly positive Wassermann become negative one may think the infection has been eradicated but after a while both these fluids may give a positive reaction again. The truth of the matter may be that syphilis is a disease rather easily controlled, but difficult to eradicate.

But of what use, one may well ask, is there in stressing the importance of the early recognition of paresis?

Even if little may be done to stay the progress of the malady, much may be done to save the individual from himself, and to prevent him from doing irreparable damage to his possessions, to his family, and to his untarnished good name. The mental abnormality develops so insidiously that, as a rule, some overt act is necessary to cause an investigation of the mental status. Recently a man was sent to me because he stated very nonchalantly while purchasing a pistol that he intended to kill a certain neighbor. His subsequent behavior induced the belief that he would have executed his threat. A fortune may be squandered over night, shameless debauchery may be indulged in, character may be hopelessly damaged, and under the impelling influence of persecutory delusions, murder may be committed. A deluded paretic by his murderous assault undoubtedly shortened the life of Mayor Gaynor.

Many a great corporation has been brought almost to ruin by an undiscovered paretic at its head. Every sufferer from this terrible malady, while unrestrained, is a menace to himself, to society and to his own reputation. Quite contrary to general opinion, the paretic is often suicidal. The sooner the general paralytic is taken in charge and dispossessed of management of his estate, the better it will be, not only for himself, but also for his family and his good name.

Nowhere better than in paresis is there to be found substantial basis for the terrible truth of Omar Khayyam's lines:

"The Moving Finger writes; and, having writ,
Moves on: nor all your Piety nor Wit
Shall lure it back to cancel half a line,
Nor all your Tears wash out a Word of it."

AMOEBIC DYSENTERY.*

By James Kenan, M.D.,
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Although I knew that amoebic, or tropical, dysentery did exist in this locality, my attention was not directed to it especially until last July. I was surprised at the number of cases I have seen since then. In the previous ten years I had recognized three or four at the most. Since July Dr. Furniss and I have treated seventeen cases. Looking back, I am sure I have treated a number of cases whose true condition I failed to recognize. I am also sure that other doctors in my locality have been as much at fault as myself, since they, though having large practices, have treated few, if any, cases as such. There are several species of amoeba parasitic in man. The amoeba coli is found in the feces in both health and disease, and, although world-wide in its geographical distribution, the percentage of infection varies greatly in different localities, being highest in tropical and lowest in cold climates. It was found in 50 per cent of those examined in West Prussia, 20 per cent in Berlin, 71 per cent of healthy American soldiers in the Philippine Islands. In two hundred soldiers examined in San Francisco, recruited from all parts of the United States, 65 per cent contained amoeba. This organism has been proven non-pathogenic in man by numerous experiments. Craig states that its common occurrence in healthy individuals in whom it has been observed for months, and even years, without producing symptoms of diarrhoea or dysentery and the negative results of animal experiments by numerous investigators proves that this species is a harmless commensal of the human intestines. Shaudinn showed that this entamoeba, which he called entamoeba-coli, is capable of living in the human intestines, but that it never produces symptoms of disease in either animal or man. It is of interest to us only in that its presence in the stool might be confused with the entamoeba histolytica or some other form of dysentery. The disease known as amoebic dysentery is caused by the entamoeba histolytica or tetragena, which was for a time considered a different species, but more recent investigations have shown them to be identical. Shaudinn was the first to demonstrate the actual species, which he named entamoeba histolytica and conclusively proved that it is the cause of a form of dysentery and that the so-called spores of this parasite are infective. By experiments with kittens he showed that the young vegetative forms of the parasite were incapable of producing the disease, but that if the feces of cases recovering from dysentery in which the infective spoke-like cysts are present were fed to susceptible animals a large proportion will develop the disease. To use Shaudinn's words: "When large quantities of feces from cats developing dysentery which contained only vegetative stages of the amoeba, no spores being found, were fed to a cat, it remained well for four weeks and showed no amoeba. It was then fed with a remnant of dried feces which contained multitudes of spores. After six

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days amoeba began to appear in the feces. It died in two weeks and autopsy showed typical amoebic dysentery." It is curious to note that in these experiments animals fed feces by mouth developed the disease quicker than those injected by bowels.

The disease is probably contracted through drinking water, eating fresh raw vegetables, fruits, etc. Since there has been no satisfactory evidence that the pathogenic form of amoeba has ever been cultivated, it seems to me that there can be no satisfactory knowledge as to how it is contracted. It is but natural to suppose that since other forms of amoeba are found in these places, the pathogenic form may be contracted in similar manner. It is a disease usually of the late summer months.

PATHOLOGY.

The large intestine is chiefly involved. The disease may affect the whole colon or a portion only. In severe cases the whole bowel is riddled with ulcers. It may be confined to the sub-mucosa or may involve all the coats. Marked thickenings of the intestinal walls is a striking feature of the disease. Other features are hemorrhagic catarrh; of raised hemispherical areas of infiltration protruding above the level of the surrounding mucosa. The amoeba insert themselves between the cells of the normal mucosa and finally reach the sub-mucosa, where migration and reproduction take place. The mucosa becomes bulged out and small pinhead size dots appear on the interior of the bowels. Infiltration and oedema take place, the mucosa breaks down, forming crater-like ulcers with ragged, undermined edges. The ulcers are filled with yellowish, grayish or bloody mucus. The amoeba are found along the base and sides of the ulcer. These ulcers may communicate with each other, extending in a variable degree beneath the mucus coats of the bowels. The mucosa between the ulcers may appear perfectly normal. The amoeba wandering in the sub-mucosa, carrying with them adherent bacteria, cause continuous disturbance, producing oedema, round cell infiltration, softening and breaking down of the tissues. They are not confined to the sub-mucosa, but may be demonstrated in the glandular tissues, in the lympathics and blood vessels. They may penetrate the walls of the veins, producing thrombi. The inflammatory process leads to great thickening of the bowel and hypertrophy of the vessels.

COMPLICATIONS.

The most frequent complication of amoebic dysentery is abscess of the liver, occurring in from 11 to 33 per cent of the cases, being one in every seven of Rogers cases. The parasites reach the liver by two paths, the most frequent being through the portal vein; the other through the peritoneal cavity; the parasites penetrating the muscular coats of the intestines and entering the liver from its surface; 70 per cent are situated in the right lobe and are usually single. The contents of the abscess being yellowish, grayish-red or brownish-red fluid, with shred of necrotic liver tissue; 85 per cent are free from secondary infection, the amoeba being constantly found in the abscess walls. Rogers states that the controversy over the relationship of amoebic dysentery and liver abscess can now be definitely settled. In 1902 he published extensive data proving the presence of dysentery at some time or other in over 90 per cent of liver abscess in Calcutta. In one-fourth of the cases bowel ulceration was found only at autopsy, when no symptoms or history of dysentery were available. Since that time 98 per cent of autopsy cases showed evidence of amoebic dysentery. The more frequent complications are perforation, peritonitis, intestinal hemorrhage and abscess of the lungs.

SYMPTOMS.

There is extreme variability of symptoms in different individuals. The irregular course marked by periods of intermission and exacerbation; the appearance of rose-colored mucus and blood; tendency to chronicity and tenesmus are the more common. The patient

usually is unable to state when the trouble began; they may complain of more or less lassitude, continuous headache, indefinite abdominal pains and dyspepsia. These symptoms may continue for months before an outbreak occurs or there may be an acute attack in the beginning, with fifteen to thirty stools per day, pain, tenesmus, nausea, vomiting, rapid emaciation and death; or it may pass into the chronic stage, intermitting between periods of diarrhoea and constipation. Anaemia and emaciation are always present, the skin dry and yellow, face drawn. Diarrhoea is the most constant symptom of this disease, being, in acute cases, so mild as to be overlooked entirely, and liver abscess the first symptom of the disease. The chronic cases may have periods of even weeks, and even months, between the attacks, with perfectly formed stools. In those with gradual onset the stools are watery and of normal color, changing as the catarrhal condition of the bowel progresses to mucus and blood. The rose-colored mucus is an important symptom. Rogers states: "If separate pieces of rosy, blood-stained mucus constitute all, or nearly all, of the stool, amoeba are usually abundant." Sudden and uncontrollable desire to defecate has been a prominent symptom in our series.

TREATMENT.

To Leonard Rogers is due the credit of giving us a specific for this disease. Those who have used the old ipecac treatment with its many objections can appreciate the brilliant results of the new. Even by the various means that have been devised for its administration, none of them were free from the excessive nausea and vomiting. From an understanding of the pathology of the disease we see why ipecac is uncertain and inefficient, even though it reaches the colon. Within the intestine its action is probably only local and destroys only those parasites with which it comes in contact. It has been shown that the amoeba burrow deeply into the tissues, where the drug does not reach them. Emetine is given by hypodermic injection; it does not cause nausea or vomiting, and slight, if any, reaction at the site of injection. It circulates in the blood and attacks the amoeba directly, killing all parasites within the tissues within sixty hours. The success of the drug in our series has been little short of marvelous. Not only did all symptoms disappear after the second day, but the gain in weight was marked. A number of them gained as much as a pound a day from the beginning. None of our patients were put to bed and diet not restricted. The pain from hepatitis ceased within twenty-four hours, temperature and leucocytosis quickly subsided. Hepatitis occurred in two of our cases. An objection has been raised that emetine does not destroy the amoeba within the lumen of the intestine. It has been reported that they have been found in the feces after apparent cure. This may account for the relapses which sometimes happen after treatment. It is possible, however, that these may be the non-pathogenic form normally found within the intestines. If it be true that the amoeba within the intestines are not affected by emetine, it seems that the internal administration of ipecac after emetine treatment may be advisable. It would be much easier to do so after the patient had recovered from the acute symptoms and has gained weight and strength, as always happens. In our seventeen cases there has been no relapse. Some of them since July, 1913.

The hydrochloride is the preferable salt to be used. It is given in 2-3 grain doses twice a day, subcutaneously, in the arm. Four or five days seem to be sufficient. It is put up in ampule form ready for administration. It may be administered in the vein in severe cases without any harmful results. It is so safe that it can be used for diagnostic purposes. Any case of dysentery which does not promptly yield to emetine is not amoeba and by this means this disease can be easily differentiated from bacillary dysentery, cancer or ulcer of the rectum. In cases of hepatitis, where suppuration has not occurred, pain is relieved in twenty-four hours. In cases of

liver abscess which are free from secondary infection, which happens in the large majority of cases, it will not be necessary in future—says Rogers—to resort to open operation, but to aspirate the pus and inject one grain of emetine, dissolved in one ounce of water in the cavity and seal the opening with collodion. The infective ones may have to be drained. There were no liver abscess cases in our series.

With us the drug has been a most wonderful success, comparable to quinine and salvarsan in their respective uses and realizing the ideal of therapia sterilans.

Summary: Amoebic dysentery is more frequent in this section than is generally supposed. The amoeba are easily demonstrated in the stools of dysentery patients upon a microscopic examination of the rose-colored mucus. Any case of intermittent dysentery, where microscopic examination is not available, especially if stools contain rose-colored mucus, should be suspected as being amoebic, and emetine administered. Emetine is safe, harmless, prompt and certain.

History—Girl, 18 years of age; weight, 97 pounds, had been troubled for 18 months with intermittent attacks of diarrhoea and constipation. The attacks of diarrhoea would come on suddenly, without warning, with an uncontrollable desire to defecate. She had lost about 20 pounds in weight in past 18 months. The stools contained during attacks of dysentery some mucus and blood. The attacks never lasted long—three or four days at most. No thorough examination of the stools was made in this case, but emetine was given with prompt relief. She had had no return of symptoms for a year. She gained 28 pounds in weight in one month's time. Health perfect since. No return of symptoms.

Second Case—Male, age, 20; clerk in grocery store, had lived in the country, was much emaciated, skin yellow, weight, 104. He had been troubled with intermittent attacks of dysentery for three years. When first seen was having about 40 stools a day, consisting of mucus and blood; tenderness over entire abdomen, particularly over the liver, temperature slightly elevated and pronounced leucocytosis. He was given two-thirds grain of emetine twice daily for five days. Mucus and blood disappeared from the stools on second day and bowels returned to normal; the tenderness over liver and abdomen entirely relieved in 24 hours. This case has been under observation since July, 1913, and has had no recurrence. He gained in weight 19 pounds in thirty days.

These two cases briefly illustrate the types of the disease. The one, mild with few symptoms, diarrhoea slight, intermittent and lasting only a few days; the other acute, 30 to 40 stools per day, tenderness of liver—representing an acute attack with hepatitis.

THE INTRAVENOUS ADMINISTRATION OF SALVARSAN IN BABIES.

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A satisfactory method of giving salvarsan intravenously to babies was recently reported from the New York Babies' Hospital by Holt and Alan Brown.[1]

The method is the result of evolution. At first the baby was anesthetised, the vein in the arm was dissected out, and the medicine introduced through a fine glass canula. Owing to the vessels being so small and fragile they next tried the external jugular, making the injection directly through the skin into the vein. This worked well except in fat children, when it was still necessary to resort to dissection. Finally the veins in the scalp were tried, either the posterior auricular or a branch of the temporal being used. When the child cried the veins swelled out prominently, and owing to the fibrous and bony attachments it was very easy to enter. This last method was so superior to the others that it has since been used exclusively, and without any unpleasant symptoms at all, except a slight local indura-

1. Holt and Brown: Amer. Jour. Dis. Child., September, 1913.

2. Strathy and Campbell: Amer. Jour. Dis. Child., September, 1913.

tion in one case, lasting a few days.

The dose of salvarsan to a baby under 8 months of age was .05 gm.; above this age, .10 gm. or more was used. It was found that this, dissolved in 5 c.c. of distilled water, could be injected without the least irritation, so that the usual dilution was unnecessary. A 5 c.c. glass syringe was used with 22 gauge needle 1.5 c.m. long. The child was wrapped in a sheet, the head hyper-extended.

The cases were treated in the hospital and were kept there under observation for three or four days after the injection. However, Strathy and Campbell[2] gave ninety-eight injections of salvarsan in the veins of the arm and neck in older children and most of them went home a few minutes after the treatment. No trouble followed. This is the custom which I have followed with babies, and so far without any ill effects.

As to employing salvarsan: It seems agreed that the younger child, and the earlier that treatment is instituted, the better the results, and the more readily does the Wassermann become negative. With Holt and Brown[1] the tentative plan was to give the second dose two weeks after the first; following this the dose was repeated every month or so for a year. Strathy and Campbell,[2] working with older children who were more resistant, advocate as large doses as the patient will stand, and repeated oftener than every seven days. In all cases the administration of mercury is to be continued.

I wish to report a case of syphilis in which neosalvarsan was injected into a vein of the scalp according to this late technic. J. W., 9 months old, was well nourished, weighing 22 pounds, and full of life, but had never tried to crawl. His father had had syphilis. His mother had never shown symptoms. An older brother had all the usual signs of hereditary syphilis when a baby, and recovered under mercury. J. W., when 6 weeks old developed syphilitic epiphysitis of the elbows, and lost the use of his arms. An eruption appeared; also "snufflers." These conditions disappeared under mercury, which then was dropped. When 6 months old an ulcer appeared on the lower lip. This went away under mercury, to appear later—the mercury again being neglected. This time mercury in various forms was of no avail, and besides, fissures in the corners of the mouth and superficial ulcers on the ends of the fingers appeared and spread. The father was growing apprehensive, and the parents readily consented to an intravenous injection.

The baby's arms were secured by wrapping him in a sheet. The scalp above the left ear was sterilized with soap and water and bichloride, and surrounded with sterile towels. The head was held firmly, and the child's crying and efforts to free himself caused the veins to stand out plainly. No local anesthetic was used. The posterior temporal, just above the ear, was selected, and the injection made into this; the close attachment of the vein to the skin above and to the unyielding bone beneath prevented the vein's slipping away from the needle, making its entry quite easy; 0.15 gm. of neosalvarsan was then injected. The needle was withdrawn and pressure applied for a moment to stop the slight oozing, and a drop of collodion applied, after which the baby was taken home. No unpleasant results followed, except a slight swelling, which was gone by next morning. This was probably due to the point of the needle sticking into the wall of the vein during the movements of the child, allowing the escape of some of the solution into the surrounding tissues.

Attention since to this point has improved the technic. Three days following the injection the lesions had entirely disappeared, only a slight redness of the skin marked the site of the ulcer on the lower lip. This soon faded. Ten days after the treatment the baby crawled across the floor into an adjoining room.

The rapid disappearance of the skin lesions is, of course, the usual result of treatment with salvarsan. The crawling may have been only

a coincidence—though another baby 15 months old, large and well nourished, was unable to turn from its face onto its back, or the reverse, or to assume the sitting posture, though able to sit alone when placed in the upright position. This baby has grown very much more active in three weeks with two injections of neosalvarsan. What I wish to emphasize is the easy and altogether satisfactory method of intravenous medication by employing the veins of the scalp. And not only is it useful for administering salvarsan, but these veins might be used for giving anti-toxin in desperate cases of diphtheria, or for injecting strophanthin, or for obtaining blood for culture work, and the like. At any rate the method renders the salvarsan treatment of syphilis in the child as simple as in the adult.

VERRUCOSE DERMATITIS.

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Forms of eczema, or possibly more properly speaking of chronic dermatitis, in which there occurs a large number of papillary outgrowths, have long been recognized by experienced dermatologists. On the other hand, practically no attention is paid to them in the textbooks on skin diseases, Crocker (1) and Stelwagon (2) simply according them a line or two of description, and the majority of the other books not even mentioning the name. However, Bloodgood (3), in an excellent article upon new growths originating from the skin, clearly describes the condition, and gives an illustration of it. In the dermatological literature of late years the only article that I have been able to find is that by Gavini (4).

Within the past two years I have seen a number of such cases, and in no instance was the correct diagnosis made, or even suspected, by very competent medical men, hence it seems wise to give a systematic description of the condition which is not especially rare:

Case 1—The patient was a male mulatto, aged 43, who entered Dr. E. A. Balloch's surgical service at the Freedmen's Hospital because of a varicose ulcer upon his leg. The family and past history were unimportant. The patient stated that he had suffered from the present ulcer for many years, it sometimes practically healing up, only

Case No. 1.

to break down again. Examination showed markedly varicose veins of the leg, and an irregularly shaped ulcer about 8 by 10 cm. in size, situated upon the forward and outward aspect of the right leg, the lower margin of the ulcer being about 8 cm. above the dorsal surface of the foot. The ulcer was a typical varicose one, the base covered with a dirty granulation tissue from which exuded a considerable amount of pus. The entire skin, surrounding the lower margin of the ulcer showed a large number of thickly studded papillary outgrowths. In some instances these excrescences were very small, not more than 2 mm. in diameter, while in other instances they were as broad as 5 or 6 mm. All were elevated about 3 to 5 mm. above the normal cutaneous surface. They

were distinctly rounded or semiglobular, and were very soft to palpation. The epithelium covering them was of a pinkish color, and was slightly moist, as though the papillae themselves were weeping slightly. The patient stated that there was some slight itching over this area, but he did not know how long these growths had been present. Unfortunately the patient was lost sight of.

Case 2—A male negro, aged 50, entered Dr. Parker's service at the Freedmen's Hospital suf-

Case No. 3.

fering from pneumonia. Over the greater portion of the lower part of his right leg there was a condition absolutely similar to that in Case 1, except that there was no ulcer or history of ulceration. However, he stated that for many years he had suffered from a dry (?) eczematous condition that had itched considerably, and which had become moist only once or twice. Above and below this area of papillary hypertrophy there was a typical squamous eczema. As soon as the patient recovered from his pneumonia he left the hospital, and could not again be located.

Case 3—This case was the most interesting one of the series, because of the fact that the papillae had undergone marked hyperkeratinization. The patient was a negro woman, aged 34, who entered Dr. Burbank's medical service at the Freedmen's Hospital because of violent dyspnoea. Both symptoms and physical signs pointed to a new growth in the chest, this causing the difficulty in breathing. Her Wassermann reaction was strongly positive. No history could be obtained from the patient, as she was practically unable to speak.

Upon the lower part of the right leg was a very unusual condition. About half way below the knee there began a series of areas varying in diameter from 5 to 10 cm., composed of hard scar tissue from which all traces of pigment had disappeared. These spots were evidently the sites of old ulcers, presumably of a syphilitic nature. Below these scars, and extending out to the tip of all the toes, the entire cutaneous surface was covered by papillomatous or verrucose outgrowths, the majority of which were about the size of ordinary filiform warts, that is of a length from 2 to 5 mm., and a diameter of from 1 to 3 mm. In places these outgrowths apparently consisted of but one elongated and hypertrophied papilla, and in other places a number of them had apparently fused, so as to form much thicker growths. Absolutely without exception each one of these excrescences was covered by a thick layer of keratin, a layer so thick that the slender growth could not be bent, except at its point of attachment. When the hand was passed over the surface the sensation was similar to stroking a very coarse wood rasp. The toes were practically matted together, and could not be separated. In fact, movement in the foot joints was also very difficult to obtain, apparently due to the hardness of the skin. There were no abscesses between the growths, and no signs of any moisture, the leg was very dry. The nails were normal, and the sole of the foot was not involved.

The patient died within a few days after entering the hospital, and autopsy showed that there was no neoplasm within the chest, but that the right lung was collapsed and gummatous.

Case 4—A fourth case was seen at the State Hospital for the Insane at Columbia, S. C., during the fall of 1912, during the pellagra conference, through the kindness of Dr. Haines. In this case the patient was an old man, who had a verrucose condition of both legs, following either a papular or squamous eczema. Curiously enough the forehead had a leontine expression, such as is often seen in leprosy, but which in this case was probably due to rosacea. It was stated that this patient's son also suffered from the same affliction.

These cases may grade off into a true vegetating condition, where, instead of each papilla being elongated, there are more or less extensive masses of vegetating granulation tissue covered by a hypertrophied epithelium. The following two cases illustrate this condition very well:

Case 5—The patient was a white man, aged 51, who was referred by Dr. Atkinson, of Washington, because of an eruption upon his neck. The family and past histories were of no particular importance. The patient stated that the present trouble had started twenty years ago, with what was diagnosed as a typical eczema. The trouble started with small vesicles, that speedily broke and oozed, and that itched intensely, especially when water was applied. No treatment had given any lasting benefit, and within the past two years the growth had become larger and had protruded beyond the surface of the skin. Since that time he had been treated with radium and X-ray in addition to many different varieties of ointments and lotions.

Examination showed that upon the left chest, and with its upper border directly over the center of the left clavicle there was a lesion about 12 cm. in diameter. The color was a fiery red, and there was some oozing. In general the surface was a combination of verrucose and vegetating, all transitional stages between the two conditions existing. In a few places there was evidence of the development of scar tissue, which we were inclined to attribute to the radiation. The epithelium was unhealthy looking, and felt very soft and friable. There was no deep infiltration, and no enlargement of the neighboring glands. The lesion was very painful to the touch, and the patient stated that there was a great amount of itching and burning, as well as considerable pain.

Under light chloroform anesthesia, the lesions were rapidly but thoroughly curetted away; they separated very readily, for they were remarkably friable. Beneath them was found an underlying base of hard fibrous tissue. Bleeding was checked by pressure and the use of a 1 to 1,000 solution of adrenalin. The lesions were then cauterized according to Sherwell's method; that is by the application of the acid nitrate of mercury for fifteen minutes, several applications being made. A dry bicarbonate of soda was then added in excess, in order to neutralize any excess of acid. As usual a hard, black crust promptly formed, and no further dressing was necessary. When the crust separated, about two weeks later, it was found that practically complete healing had taken place beneath the scab, and that a firm, healthy scar had taken the place of the exuberant granulations. Itching had stopped, and there is no longer any pain.

Case 6—The patient was a negro boy, aged 15, a patient of Dr. Blue's, through whose courtesy the patient was sent to me. The boy gave the history of an ulcer upon his foot, since he was one year of age. He further stated that he had tried all kinds of ointments, and that the lesion had been cauterized, but that no good had resulted.

Examination revealed a condition very similar to that existing in the last patient, except that the lesion was more distinctly a fungous one, and that it was situated upon the outer aspect of the right foot, just below the external malleolus. The lesion was about 10 cm. in diameter, and just above it was a smaller one about 3 cm. in diameter. The lesions did not itch at present, but were somewhat painful. Clinically they could not be told from tuberculosis verrucosa cutis, but their long duration, as well as the absence of giant and epithelioid cells from sections rather spoke against this.

Under general anesthesia the lesions were curetted, the edges excised with the knife, with a fair margin of healthy tissue, the larger bleeding vessels tied with catgut, and the oozing checked as in the previous case, and the wound cauterized in the same manner. The wound has healed nicely, and the result seems perfect.

From a study of these six cases it has been possible to draw certain definite conclusions, which may be summarized as follows:

Etiology.—In practically all of the cases the skin upon which this epithelial hypertrophy took place had at some time been subject to more or less continuous irritating discharges, usually continued over a considerable space of time. The papillary hypertrophy seems to have taken place before the discharge and irritation had ceased. It has been long known that irritating discharges can produce epithelial hypertrophy, as in the case of the venereal warts, hence it seems a perfectly safe conclusion that irritation is responsible for the condition. In the three cases in which it was possible to obtain cultures, only the staphylococcus albus was grown in pure culture.

Clinical Course.—The course of the malady is essentially chronic, and there is no tendency

towards spontaneous healing. As a rule the lesions are sharply circumscribed, and there is very little tendency for them to spread. The characteristic lesion is the hypertrophy of the papillae, which may remain discrete or which may become confluent. In the latter state comparatively large vegetating masses may form, and it be impossible to recognize the condition from a true dermatitis vegetans, which in reality is probably only a further stage of verrucose dermatitis. The excrescences may remain soft or they may become keratinized, as in Case 3. There is usually some itching, and the lesions may be quite painful.

Histology.—Material for microscopic examination was obtained from Cases 3, 4, 5 and 6. In all instances it was hardened in alcohol, and stained with haematoxlyn and eosin.

Two different types of lesions can be observed; first where there is hypertrophy of but a single papilla, and second where a number of papillas have coalesced.

Where a solitary papilla is involved it is both thickened and elongated. The epidermis is of only four or five cells' width, and cells are frequently considerably compressed, probably due to lateral pressure, for the outgrowths may be very closely crowded. The blood vessels of the papilla are distended and there is a great amount of cellular infiltration, most of the cells being of the fixed tissue type, although there are a few eosinophiles and small round cells. Polymorphonuclears, mast cells and plasma cells are lacking. There is a comparatively large amount of free pigment scattered throughout the papillae.

Where several papillae have coalesced the epidermis resembles that seen in eczema madidans, for the intrapapillary processes are much longer than usual, and frequently join in the depths of the corium. In other words, there is a considerable hyperplasia of the epithelium. There is a marked amount of infiltration scattered irregularly throughout the corium, especially in the upper portion, the cells usually being of the fixed tissue variety. The sebaceous and sweat glands seem to be greatly reduced in number, and only an occasional sweat duct can be discerned. The blood vessels are dilated, and there is some perivascular infiltration.

In Case 3, where there was such marked hyperkeratosis, the histological picture is rather that of a sclerosis of the subpapillary part of the corium, with considerable vascular dilatation and perivascular infiltration. The most marked feature is the great thickening of the horny layer of the skin, it being at least five times as thick as normal. In addition no cutaneous appendages can be found, even the sweat ducts are missing.

Differential Diagnosis.—Several conditions must always be differentiated, and at times this may be difficult.

Malignancy should cause no trouble, for in the benign condition under consideration there is a history of too long duration, there is usually no induration, and there is no hard infiltrated edge such as occurs in skin cancers. It is, of course, possible that malignant degeneration might take place in verrucose dermatitis.

Dermatitis vegetans, so-called, is probably simply another name for a more advanced stage of the same process, and in reality there is no need to separate the two.

Tuberculosis verrucosa cutis is at times very difficult to tell from verrucose eczema that has reached the vegetating state, and in which the hypertrophy of the separate papillae is no longer apparent. The only sure test would be the inoculation of a guinea pig, for tubercle bacilli are notoriously hard to find in tuberculous conditions of the skin, even when the tissue is dissolved in antiformin. Histologically giant cells might readily occur in both conditions, although the presence of many epithelioid cells would speak in favor of tuberculosis.

Blastomycosis certainly clinically resembles many of the moist papillary cases, and to some extent the vegetating ones, but usually shows

minute abscesses between the papillae, from which can be squeezed out pus containing the characteristic organisms. A biopsy would help settle the question, for not only might the organism be found in the section, but the general appearance is different, for in blastomycosis there are numerous miliary abscesses packed with polymorphonuclear leucocytes, whereas in vegetating there are no such abscesses.

Bromide eruptions might confuse. Gaskill (6) has recently pointed out that the eruption produced by this drug may markedly resemble the diseases already considered. In such a case the history would be extremely helpful, and the effect of omitting the drug would probably decide the question.

Pemphigus vegetans should not confuse the observer, for in this condition the mucous membranes are usually first affected, and then the flexures of the body. Also the disease primarily starts with vesicular lesions.

Prognosis.—As already pointed out the lesions of verrucose eczema may spread until a wide surface is involved, or they may remain localized to a comparatively small area. There is no tendency for spontaneous healing to take place. In cases where but a small amount of the cutaneous surface is involved it is possible to secure fairly prompt restoration by means of surgical intervention, but in extensive cases this might be very difficult.

Treatment.—Surgical treatment is undoubtedly the quickest way of curing the condition. Salves and ointments are absolutely useless, except to prevent the spread of the malady, and to allay itching. So far as my experience goes neither radium nor the X-ray has helped, although we cannot deny that either of these two remedies might prove beneficial. The best treatment is probably thorough curettage, under a general anaesthetic, and cauterization with either the actual cautery or the acid nitrate of mercury. Preliminary curettage is to be preferred, because one can tell by the "feel" of the curette about how much tissue it is necessary to remove.

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THE SUPREME CIVIC LAW.

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There are said to be forty-seven varieties of conservation. I take it that the statement is at least approximately correct. Whether there are so great a number or fewer lines of conservation work, it will be conceded that of all, health conservation is the most vital in the consideration of individual and community welfare.

That this concept is as yet recognized only by the receptive minority is logical. The basic facts of the new health philosophy are comparatively recent. Only a few years have passed since the denizens of the hidden world have been revealed; knowledge of their relation to man's welfare is the result of even later research.

The discoveries of the bacteriologist, pathologist and psychologist, within a generation, have been overwhelming. Immediate adjustment could not be expected. In application, the fundamentals discovered involve changes which lie deep in the social structure; also they imply a substitution of habits of thought and living for those which now obtain. No social reform is more difficult.

It will appear at once that dissemination of these truths is imperative; that primary

instruction is the first essential to progress. Those who do not know can not be expected to practice. Those who are skeptical must be convinced by proofs unanswerable; those apathetic, moved to activity; those discouraged, heartened.

There are four obvious reasons for health promotion that appeal to the popular mind. The average term of life can be lengthened; certain transmissible disease can be controlled; sickness is an unpardonable form of waste; and money invested in health brings an immediate and tangible return.

A brief survey of the sanitary history of the past twenty years in every civilized country will substantiate the truth of these premises.

In Europe, where principles of hygiene have been enforced through governmental agencies —notably in Germany and some of the smaller northern countries—within a half century the span of life has been lengthened. In the middle of the nineteenth century the annual mortality of London was 24 per thousand; in 1900, 14 or 15 per thousand. In France, the mean length of human life from 1825 to 1830 was 32 years and 8 months; in 1864, 37 years and 6 months. The average age at death among us in 1890 was 31.1; in 1900, 35.2. Records of New York City give a striking illustration. In 1866 the death rate was 36 to each thousand; in 1911 it was 15.13.

It is asserted by well-known authorities that with our present knowledge it is possible to stamp out all germ disease; that for this we do not need to discover another fact in the realm of scientific medicine. That control, if not elimination, of many infectious diseases is practicable has been proved. Smallpox, diphtheria, plague, cholera, malaria and typhoid fever have been attacked. The results are more than encouraging. In the Italian States in 1900 there were 15,865 deaths from malaria; in 1910, only 3,610. For the five years ending in 1906, in the registration area of the United States there was a steady decline in the death rate from this malady. Dr. Howard states that each year there are probably 3,000,000 cases of malaria in the United States, most of which are in the South. Dr. Irving Fisher says this is practically all preventable. In New Jersey during the last seven years, due to measures taken to destroy the mosquito breeding areas, the number of deaths from malaria has fallen from 82 in 1898 to 40 in 1904.

In the application of the principles of sanitary science, many of the cities of northern Europe are in advance of the average city of the United States. In this connection figures showing the typhoid rate may be of interest. The fifty registration cities in the United States have an aggregate population of over twenty millions. For 1910 in these cities the aggregate typhoid death rate was 25 per hundred thousand. Comparing with the 33 principal cities of northern Europe, having an aggregate population of thirty-one million five hundred thousand and an average typhoid death rate of 6.5 per hundred thousand, the American cities have had 18.5 deaths per 100,000, which should never have occurred. In these fifty cities there were at least 3,600 deaths and 36,000 cases of typhoid fever which should never have occurred. (Allen J. McLaughlin, Public Health report, March 22, 1912.)

I need not call to your attention the notable health experiments in control of yellow fever in New Orleans, bubonic plague in San Francisco, and through sanitation the partial elimination of preventable maladies in the Canal Zone, Cuba, Porto Rico and Manila.

No trained director of any enterprise would tolerate for a moment a waste in his business so patent as sickness in the organization we call society. If this element of community welfare were understood, municipal, county and State corporations would borrow money to invest in health. To analyze for a moment, the population of Alabama is 2,138,093. The average death rate per thousand for rural districts is 10; this for the State of Alabama means annually approximately 20,000 deaths.

The population of Mobile for 1910 is given as 51,521. The average death rate for cities is 15 per thousand, a total for Mobile of 780. If half of these deaths are preventable, the number would be for the state 10,000; for the city, 390. Assuming that the average cost of a case of disease for medical attendance, drugs and loss of time to the wage earner is ten dollars, then this debits $25,000 per annum for just one-fourth of the total number—the wage-earning contingent. Remember these figures show only one-half of the annual number of deaths, and one-fourth of that is a conservative estimate of wage earners included in the one-half.

If there is actually expended ten dollars each for the 390 fatal preventable cases of disease in Mobile, then the amount is $3,900. These figures do not compare with those given by writers on the cost of malaria and typhoid fever. For example, the State Board of Health of Florida gives four hundred thousand dollars per annum as the average cost of malaria. The Kentucky Board of Health gives nine hundred and sixty-three thousand seven hundred and fifty dollars as the cost of caring for the typhoid fever patients for one year. The Indiana State Board of Health estimates on lives unnecessarily lost, time lost, cost of drugs, nurses and physicians from typhoid fever alone, five million dollars annually.

The figures given for Alabama and Mobile relate only to a most conservative estimate of the actual number of dollars expended. The waste element becomes much more apparent when the economic value of a life is considered.

The legal estimate of the value of a human life is placed at five thousand dollars. Using these figures, the annual loss in the State of Alabama from preventable diseases is fifty million dollars ($50,000,000). For Mobile it is one million nine hundred and fifty thousand dollars ($1,950,000).

This loss is not theoretical; it is a positive factor in the economic welfare of the community. The scientific man of today is an economist; so is the business man. Among those who endeavor to direct affairs, social or commercial, there is little patience with material, or spiritual, preventable waste. Proof that it exists in the social structure, or individual enterprise is motive for immediate activity.

To make the debit items caused by illness, credits, there is necessary the application of the principles of scientific management.

Not to weary you with figures, in Cuba, where the health fund is a per capita of forty-six cents, the results are 4.32 lives per one thousand saved each year. At the same rate, Alabama and Mobile would save many valuable citizens. Then would it not "pay" to have a 50 cent per capita health investment? The mere money value is inconsiderable as compared with what may be termed the spiritual worth.

There is yet another phase of the economic aspect of investment in disease prevention. Every State, almost every community is burdened with the care of a large class of unfortunates. It is estimated that the cost of defectives alone, the insane and feeble-minded in the United States is annually eighty-five million dollars.

Health begets wealth for the community as well as for the individual; disease is a defect, an economic burden, and these appalling figures make it evident that the nation pays enormously for imperfection. It pays in money, in potential wealth, in ethical values.

The new viewpoint of the relative value of hygiene in its application to life is due not wholly to the discoveries in medical science. It is one phase of the general awakening to the defects of the present social order, a manifestation of the modern attitude toward "waste." Efficiency implies economy, not alone of cost, but of material resource and vital force.

Conservation and preservation of the material wealth of the country is dominant in the intellectual activity of all enlightened people.

But it becomes increasingly apparent that the nation which conserves its mines, forests, soil and sources of power is poor indeed if its men lack virility and mental initiative.

Back of the public health movement exists the conservative idea. The impulse of the health propaganda is in part commercial, in part scientific. It grows out of recognition of the futility of remedial and philanthropic measures and the conviction of the potentialities of science for human betterment. The import of the movement is ethical and spiritual; and beyond question it is the greatest of modern times.

In the popular mind health work has reference only to superficial conditions, control of epidemics, cleaning of streets and similar activities, but the hygienist knows that sanitary regeneration means an attack on many existing institutions, customs, practices and methods which are the roots of the social structure.

These elements, not so apparent, but more essential, are housing, child labor, industrial occupation, labor insurance, vital statistics and supervisory inspection.

Mr. Lawrence Veiller says: "We have paid dear for our slums. . . . Of the burden which the State is called on to bear in the support of almshouses, hospitals, asylums, prisons and reformatories, what portion can fairly be attributed to adverse early environment?" Describing surroundings, the author continues: "The sordidness of it all, the degrading baseness of it unfortunately is withheld from the eyes of most of us. . . . Let us frankly admit that these conditions result in imposing upon the great mass of our people habits of life that are more compatible with the life of animals than that of human beings."

With the knowledge we have of the relation to health and sickness of air, sunlight and propagating agencies of disease incident to dirt, it is nothing short of criminal to tolerate such conditions.

Authorities stand aghast at the expense involved in the tearing away of a whole section of a city, but the cost of such a measure may become a mere item in comparison with the economic loss from an epidemic of virulent type.

It is a hopeful sign that child labor laws are now more humane than a few years ago; but as yet we are far from an ideal stage in the regulation and supervision of this feature of industrial life. Of the other points mentioned there is not time to dwell, but I cannot forbear a word on the immediate and imperative need for statistical information. Records of births and deaths and of supplementary details form a basis for advancement. Without such data, the sanitarian gropes in the dark. Yet no request from the health department is so lightly treated. Reform in this can be wrought slowly. Appropriations to pay registrars and enforcements through courts are the means for the inauguration of a more perfect system.

Health as a fundamental in social welfare is a new concept. The idea has grown concomitantly with conservation of material resources. Its supreme civic importance is fast becoming understood. For health promotion, popularization of principles of hygiene is necessary. Instruction, if rightly presented, will arouse the apathetic and indifferent and measures of promotion will be commended.

THE INNOCENT CRIMINAL.*

By Abner H. Cook, M.D.,
Hot Springs, Ark.

In the classification of mankind according to mentality a few years ago there were recognized but two groups—the sane and the insane. Of course there were the precocious, the mediocre, and the stupid; but these were considered in full possession of all the attributes of the normal mind. Today, to those who have studied the subject, it is

*(An address delivered, by invitation, before the Third Arkansas State Conference of Charities and Correction, Fort Smith, Ark., May 6, 1914.)

known that a large proportion of the so-called lazy, indolent and stupid are mental defectives; even among the mediocre mental deficiency is often detected, and frequently genius is but an eccentricity manifesting an unbalanced mind.

If a criminal can read with good understanding, is well versed with commonplace topics or has special information upon those of depth or of technical nature, if he has the genius of poetry or can design an engine, if he be a shrewd trader or clever cheat, usually he is thought to be in full possession of his mental faculties. What is better proof of sanity, to the public mind, if a criminal cunningly plans the details of a crime and covers well his tracks? An old legal formula differentiates between sanity and insanity as follows: "He that shall be said to be a sot and idiot from his birth is such a person who cannot count or number twenty pence, not tell who his father or mother was, nor how old he is, so that it may appear that he hath no understanding or reason what shall be for his profit or what for his loss; but, if he have sufficient understanding to know and understand his letters, and to read by teaching or by information he is not an idiot." We shudder when we remember that at the time when this formula was used for the guidance of the courts there were 223 classes of offences punishable by death; yet this crude old formula is far more accurate than the guesses, prejudices and sympathies of our present juries.

The human family has been allowed to drift along, following the lines of least resistance and natural selection; whereas, in all else the fit and unfit have been separated. We have trained and brought to a higher standard, made more perfect strains of all else—the flowers, the trees, the gardens, the fruits, the horses, dogs, and all that lives and grows and is of value to man—except man. We have brought the useful under the influence of human selection, but the evolution of man remains under the guidance of natural selection.

But now we are on the threshold of a new era! The teachings of Charles Darwin, Haeckel, Mendel, Lomboroso, and Galton are permeating all quarters and stimulating men and institutions to work. Never before has there been such a deep study and practical application of the humanistic sciences; however, we have just begun the task of taking stock. Digressingly, I will say that the present trend of all scientific effort is toward practical utility and benefit to humanity; knowledge for the sake of knowledge is growing obsolete, and the so-called pure sciences are either practically applied or given an inferior place in the field of human endeavor.

This practical application of scientific endeavor has crystallized into the science of eugenics. Eugenics is primarily a biologic study—the application of the former so-called pure sciences of evolution and heredity, so as to "improve the inborn qualities of a race." Eugenics may be said to be the hygiene of heredity; or, the science of promotion of race culture and prevention of race degeneracy.

THE RATIONAL BASIS OF EUGENICS.

Today theories and hypotheses are given credence only when based upon observed fact and the true working basis of the natural sciences are phenomena known by careful, accurate, examinations and observations to exist. Unsupported theories are no longer satisfactory, too much valuable energy has come to naught after the explosion of an accepted hypothesis. There are some theories that seem to be rather fantastical, but they appear to be so strongly supported by fact that, in the light of our present knowledge, they are entitled to be classed as laws instead of theories; notable are the atomic and ionic theories, the theories of immunity, evolution, etc. Supported as they are, who can say that they are absolutely correct; who can say that tomorrow will not bring new information, disproving all that is at present accepted and build up new theories to replace the old, only, in turn, to be displaced? This is the history of science.

In view of these conclusions, to have confi-

dence in our study it must be based upon something tangible, something that we can see, and, at least in part, interpret. All of the basic principles of biology substantiate the eugenic theories, but those upon which they rest most securely are: (1) The genital cells, and (2) Mendelian laws of heredity applied to the human family.

The *genital cells* are much larger than the somatic (body) cells and contain a small nucleus with a delicate chromatin network and several nucleoli. These cells are separated from the segmentation cells, which are formed by the division of the segmentation nucleus, which in turn is formed by the union of the male and female pronucleus, and are destined to participate in the formation of the generative organs, or to become incorporated in them, to foster new germ cells that will father another generation.

Thus the steps in the cycle of the genital cells are:

(1) The union of the male (spermatozoon) with the female (ovum) germ cell, the nucleus of the latter becoming the female pronucleus and the spermatozoon, after undergoing certain changes, becoming the male pronucleus.

(2) The union of male and female pronuclei forming the segmentation nucleus.

(3) Division of the segmentation nucleus forming segmentation cells.

(4) Separation of the segmentation cells into somatic (body) and genital cells.

(5) Migration of the genital cells to the proper location where they are incorporated in the formation of the generative organs.

(6) Production of new germ cells (male or female) to unite with germ cells of another cycle initiating the cycle of a new generation of genital cells.

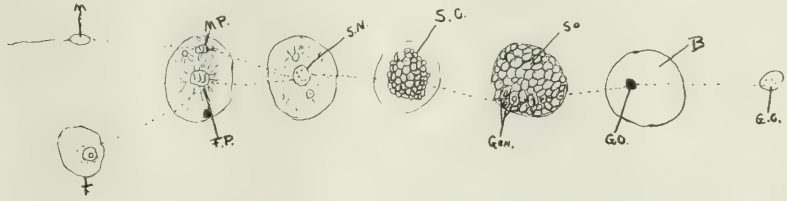

DIAGRAM OF THE CYCLE OF THE GENITAL CELL

(1) Male (M) and female (F) germ cells. (2) Union of the germ cells and formation of the male (M.P.) pronucleus and female (F.P.) pronucleus. (3) Male and female pronuclei united, forming the segmentation nucleus (S.N.). (4) Division of segmentation nucleus into segmentation cells (S.C.). (5) Separation of segmentation cells into somatic (So) and genital cells (Gen.). (6) Formed body (B) containing genital organ (G.O.), incorporating the genital cells. (7) Germ cell (G.C.), male or female.

If our observations are accurate and deductions correct, we are justified in assuming that the body is simply a by-product of the genital cell and the host of one generation, and are contributed to equally by both parents; they contain the potential energy of propagation and all the elements that produce physical, mental and ethical maturity. All that prevents one generation from being the exact counterpart of the preceding is the necessity of the union of the germ cell of one cycle with that of another to initiate a new cycle.

MENDELIAN LAWS OF INHERITANCE APPLIED TO THE HUMAN RACE.

A concise account of the Mendelian theory applied to the human race is essential to our theme and I cannot improve upon that of Rosenoff and Orr, which is as follows: "The

Mendelian theory assumes that the total inheritance of an individual is divisible into unit characters, each of which is, as a general rule, inherited independently of all other characters and may, therefore, be studied without reference to them. The inheritance of any such character is believed to be dependent upon the presence in the germ plasm of a unit of substance called the determiner. With reference to any given character, the condition in an individual may be dominant or recessive. The character is dominant when, depending upon the presence of its determiner, it is plainly manifest; and is recessive when, owing to the lack of its determiner in the germ plasm, it is not present in the individual under consideration.

"The dominant and recessive conditions of a character are designated by the symbols D and R. It is obvious that, as regards to any character, an individual may inherit from both parents. This is called duplex inheritance and is designated by the symbol DD; or, from one parent only—simplex inheritance—and is designated by the symbol DR; or, he may fail to inherit from either parents—nulliplex inheritance—and is designated by the symbol RR. In the last case the individual will exhibit the recessive condition. It can be seen, therefore, that there are but six theoretical possible combination of mates in the Mendelian inheritance system. It will be seen that attempting to predict the various types of offsprings that can result from a given mating it is essential to know, not only whether the character is in each parent dominant or recessive, but in the case of the dominant condition, also, whether it is simplex or duplex. To put the whole matter in a nutshell, the essential difference between the dominant and recessive condition of character lies in the fact that in a case of simplex inheritance the dominant condition is plainly manifest, while in the recessive condition is not apparent and can be known to exist only through a study of ancestry and offspring."

With this as a working basis these investigators studied the histories of 72 families, representing 206 matings that produced 1,097 offsprings, and reached the following conclusions:

"(1) The neuropathic condition is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition. Rules of theoretical expectation are . . . etc.

(2) Various neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied conditions.

(3) Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say they are conditions of the same degree of recessiveness varying in their clinical manifestations with the personality of the subject, environmental conditions, etc.

(4) All neuropathic children which result from the mating of two normal parents, but each with a neuropathic taint from one grandparent, can have theoretically only equivalent defects and not defects of various degrees of recessiveness.

(5) Among the actual results of such mating the following have been met with: (a) Brothers and sisters suffering from clinically identical neuropathic manifestations. (b) Psychosis in one subject and peculiar and abnormal disposition, but no actual psychosis, in brothers and sisters. (c) Psychosis in one subject and isolated but clinically related symptoms in brothers and sisters; we find with peculiar frequency dementia praecox, fainting spells, or convulsions in childhood. (d) Psychosis clinically not known to be related; senile deterioration—peculiar hysteriform psychosis.

(6) Neuropathic conditions show only in about one-fourth of the cases indications for commitment to sanitariums or public institutions. The total incidents of neuropathic con-

ditions may be roughly estimated as affecting between 1.5 and 2 per cent of the general population.

(7) It is further estimated that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable, under certain conditions, of transmitting the neuropathic makeup to their progeny."

Cannon and Rosenoff continued these researches and came to the same general conclusions; and the work of Cotton, Mott, Shuster and others point in the same direction. With these facts before us we are justified in the conclusion that more than likely, but not yet conclusive, the neuropathic taints and hereditary characteristics, both mental and physical, obey the laws of Mendel in transmission.

THE DIRECT INHERITANCE OF CRIME.

Crime, per se, is not hereditary. This statement is recognized as correct by all criminologists, neurologists, and sociologists. No murderer is so because his father was; the yeggman's art is not transmitted from generation to generation; the thief does not derive his aptitude for plying his vocation from one of his ancestors, nor does he communicate it to his progeny.

If criminality, per se, is hereditary then our existing ideas of inheritance must be discarded. Crime is not a psychologic unit or mental attribute, but is a term applied to the violation of law, whether it be natural, ethical, religious, or social, be it just or unjust. Crime is dependent upon law and law changes as the ideas of justice change, the conception of ethics progress, and the interpretation of nature and religion evolve; it changes with race and nationality, and with geographical location. Nothing is hereditary that is not a fixed anatomic, physiologic, or psychic unit. The theory of the inheritance of acquired characteristics now has but few supporters and these are fast disappearing.

CRIME AND MENTAL DEFICIENCY.

Those who have investigated the mentality of criminals report from 10 to 50 per cent as mentally deficient. This wide variation can be accounted for by individual variations in the interpretation of the tests used, and the absence of standardization of these tests. The more careful and extensive studies point to 25 to 30 per cent as the correct proportion.

The term mental deficient is applied not only to those that constitute our town characters—the idiots, imbeciles and petty criminals —but to the ne'er-do-wells, the laggards at school, professional beggars, habitual liars, paupers (please distinguish pauperism from poverty), almshouse inmates, hoboes, tramps and master criminals.

Mental deficiency in the juvenile offender is more common than in the adult, as the investigation by Mrs. Garfield Gifford of 100 offenders brought before the Juvenile Court of Newark, N. J., shows. Of these youthful derelicts but one was normal mentally. The mentality of sixty inmates at the State Training School for Girls, located at Geneva, Ill., was investigated by Morrow and Bridgeman. The cause for confinement varied from sending obscene literature through the mails to immorality, the latter forming the largest group. The following is the result of the examination:

Normal	6	10.00%
Retarded 1-3 years	14	23.33
Retarded, 4-5 years	11	18.33
Retarded, 6-13 years	29	48.33
Total mental deficients	54	90.00

It will be noted that the greatest number are in the class most retarded; this is excessive and cannot be taken as an index for like institutions because the inmates examined were suspected of being deficient by their teachers prior to examination.

The examination of 56 girls, after they had been dismissed from the Girls' Reformatory in Massachusetts, showed but four to be of normal mentality. An investigation of the in-

mates of the Railway Reform School in New Jersey revealed that 25 per cent were mental defectives, and a like investigation at the Elmira, N. Y., Reform School showed that 65 per cent were defective.

The mentality of the adult criminal has not been studied as closely as the youthful malefactor, but the fact that juvenile criminals furnish a large percentage of the adult criminals does not admit of dispute. The figures at our disposal indicate that from 10 to 20 per cent of all adult criminals are mentally defective.

In manhood, as in childhood, the mental defective is unable to compete with his fellows. Many are fortunate in not being forced into competition, living upon the present or past earnings of relatives, or the bounty of friends.

(1) *The Apathetic.*—This class is peculiarly contented with life as it is, caring not to improve himself or humanity. He is the fellow who vacillates from position to position, unable to satisfy the demands of his employer from lack of interest, and his position seems naught to him, even though those dependent upon him are facing starvation. Often he is described as a "good fellow but lacks ambition," frequently he is said to be lazy. This type produces the ne'er-do-well, almshouse inmate, tramp, bar-room loafer, professional beggar and club loafer. He is apparently harmless other than being an economic waste, but this is not the real danger; this type is usually very prolific and he will transmit the same mental qualities to a certain percentage, if not all, of his progeny.

(2) *The Servile* is seen most commonly as a drudge, working at the most menial labor for a minimum wage, frequently his food and a can of beer will engage his services. The servile is not an economic waste because he earns all he receives and sometimes more. The end occasionally finds him in the almshouse but more frequently in a charity hospital, perhaps at an advanced age, having worked until his strength gave away and dying as the result of arterio-sclerosis, organic heart disease, cirrhosis of the liver, aneurysm, apoplexy, nephritis, or senile debility. Pneumonia following exposure is particularly fatal to this class.

(3) *The Energetic* is the most dangerous of all. He is not content to sit idly by and allow charity to look after his necessities. First he attempts to follow the same lines of work as his fellows but soon realizes his inability to compete with them, therefore branches out into lines where competition is not so keen. This type produces the criminal, from the petty thief to the murderer. His crimes always have a motive, which is usually pecuniary, sometimes amourous—jealousy, retribution for an imagined wrong, etc. He covers his tracks well, can count twenty pence, knows his own mother and usually his father. The female of this type most frequently resorts to prostitution because it apparently offers the best pecuniary reward; allows the gratification of certain vanities that are akin to sensuality; affords avenues for other crimes, and being unable to control the sexual impulse the mental deficient will follow the lines of least resistance.

FEEBLE-MINDEDNESS AND HEREDITY.

Unfortunately, we do not know the pathologic basis, either structural, psychic, or biochemical of feeble-mindedness, nor do we know its embryology; hence, for proof that feeble-mindedness is hereditary, we must, for the present at least, content ourselves with the investigation of family histories. Conclusions based upon such investigations indicate that 65 per cent of all feeble-mindedness is hereditary.

H. H. Goddard has placed on record one of the most instructive families. A normal man fathered, through an unknown, defective girl, an illegitimate son. Four hundred and eighty descendents of this son have been traced, of whom 143 are known defectives. Later the man married a normal woman; of this union

there has been traced 486 descendants—all normal!

The story of the Jukes family never loses its interest. This family originated in five daughters of an irresponsible fisherman, who was born in 1720. Of 1,200 descendants 1,000 have been investigated; of these over one-half of the women were prostitutes, 310 professional beggars were produced, 440 syphilitics, 130 convicted criminals, 60 habitual thieves, and 7 murderers. It has been estimated that the Jukes family cost the State of New York $1,225,000.00—and the Jukes family is still prolific.

The history of the Poelman family is just as instructive. It was established by two daughters of a female alcoholic, and six generations produced 834 descendants, of whom there has been obtained histories of 709. They represent 107 of illegitimate births, 64 inmates of almshouses, 162 professional beggars, 162 prostitutes, 17 procurers, 76 served prison terms, and 7 were murderers.

There is recorded much more that is equally as convincing—the Zero family, the investigation of the parentage of Oxford students, of the parentage of the Royal Society, the Edward family, etc., etc. With this assemblage of facts there is little room to doubt the hereditary nature of feeble-mindedness.

CONCLUSIONS.

Recapitulating, we find that the following conclusions have been reached:

(1) Eugenics has a definite biologic basis.

(2) Crime, per se, is not hereditary.

(3) Mental deficiency is a potent factor in the production of crime—about 30 per cent.

(4) Mental deficiency is hereditary—about 65 per cent.

From this we may conclude that about 20 per cent of all crime is due to an hereditary predisposition to feeble-mindedness.

OBSTETRICAL MANAGEMENT FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER.*

By Isham Kimbell, M.D.,
Auburn, Ala.

It is not my intention to try to teach you gentlemen anything about this all-important subject. It is one in which I am deeply interested, and if the discussion elicits points of vital interest to us all I shall feel amply repaid for my efforts.

The general practitioner does the larger amount of obstetrical work throughout this community. No class of work coming under his observation is quite so important, and we should endeavor to give these cases our very best attention.

It is true that this is not always done. The question arises, "Who is responsible for this inattention, or apparent indifference? Is the doctor to blame?"

Yes; but not entirely so, and there are several reasons why.

First, his work is often scattered over a large territory, and he is unable to attend his patient during the earlier stages of labor.

Second, we are frequently called to cases without warning; consequently there has been no preparation on the part of the physician or patient.

Third, we are called to complicated cases only as a last resort after a meddlesome midwife has been in attendance for a number of hours.

Fourth, we are called to cases where the surroundings, because of poverty or illness, are such that the proper conduct of labor is an impossibility.

Fifth, occasionally we have cases in which we are very much handicapped through ignorance and superstition. This is, perhaps, the worst complication arising.

*Read before Alabama State Medical Association, Montgomery, Ala., April, 1914.

Proper obstetrical management requires much time and patience. Because these cases are somewhat tedious we may account for some of the apparent indifference exhibited by many of us.

Indifference and negligence are an inheritance of custom.

Frequently after giving the patient a list of articles necessary for the completion of an obstetrical outfit, they will ask if these are necessary.

We have heard that a number of men in general practice throughout the smaller towns and rural districts never use an obstetrical outfit, and that only a very few carry sterile dressings with them.

A bottle of ergot frequently comprises the armamentarium of the general practitioner called to an obstetrical case. Such practices as the use of dirty scissors picked up about the house to cut the cord in this day and time should be unheard of. A midwife could do as well or better.

In striking contrast to such a picture I have seen as good management in private homes as I have ever seen in the larger hospitals, everything from the obstetrician to the confinement room being as near the ideal as it possibly could be.

Having seen such good work by my fellow practitioners on several occasions, I have been inspired to try for better obstetrics.

The general practitioner may not treat the complicated cases as well as they could be treated by the trained obstetrician in an up-to-date maternity hospital, but I have been convinced that by a close study of all cases, and by trying at all times to preserve a careful obstetrical technic, that one can do work that any man might feel proud of.

The test of technic arises when unforeseen complications occur. The doctor should be equipped and prepared to treat obstetrical cases. He should own an obstetrical bag containing all articles essential to successful obstetrical management.

The inefficiency of the average practitioner lies not entirely in lack of ability, but in carelessness and in indifference bred of overwork.

It is a source of great satisfaction to go to the patient's home knowing everything has been prepared and is in readiness. This cannot be accomplished in every case; but it is always possible, if you have been able to secure the services of a well-trained obstetrical nurse. In fact, successful obstetrical management is almost an impossibility without the services of a good nurse. This satisfaction is reinforced if he has a satchel or obstetrical bag containing all the instruments and apparatus, dressings and medicines necessary for the usual case of labor, and for the more common complications.

What should be carried in an obstetrical bag depends on the condition of one's practice and an individual preference.

Proper management of any obstetrical case calls for the physician's supervision of the patient from the earliest months of pregnancy, and the laity should be brought to a realization of this. While pregnancy and labor is "normally a physiological process" it is not always so, and is liable to many aberrations and abnormalities.

The pregnant woman should early place herself under the care of an intelligent physician who may detect many complications in their early stages. These, if neglected, might place her life and that of her child in serious jeopardy. Much good might be accomplished were the profession to unite in an effort to teach the laity the importance of the proper management of obstetrical cases. The laity should know that most of the ills peculiar to women are "the result of bad obstetrics," and could be prevented, or at least materially mitigated, had the patients received proper attention before, at the time of, and following labor.

"Obstetric operations are not trifling, but are fraught with grave danger to mother and child," and the most serious ones should be

performed by experts and, preferably, in well-conducted hospitals.

"Every effort should be made to emphasize the grave responsibility the obstetrician must bear in the management of abnormal cases. The public must be taught that the conduct of a labor, complicated by a moderate degree of pelvic contraction, is quite as serious as a case of appendicitis, and that its proper management requires the highest degree of judgment and skill, and eclampsia or placenta previa are even more serious.

"At present, however, the average practitioner does not recognize the existence of the former until irreparable damage has been done, and usually considers himself quite competent to treat the latter!

Instead, he should immediately place his patient under expert care, as he would were she suffering from even a minor surgical ailment.

"The public should also be taught that the repeated birth of dead children indicates ignorance or neglect, and can, in great part, be prevented by proper care; and furthermore, that the development of ophthalmitis in children indicates ignorance and neglect of the most rudimentary precautions."

The laity should be taught that the average compensation for obstetric cases is usually quite inadequate for proper attention. They should understand that they cannot expect expert care for the paltry sums the majority of us now receive for conducting these cases.

It is a well-known fact that many well-to-do patients object to paying as much for the conduct of a complicated labor case as for the simplest surgical procedure.

"Finally, the laity should be impressed with the fact that the remedy lies in their hands, and that they will continue to receive poor treatment so long as they do not demand better. Moreover, so long as they choose their medical attendant by the way he curls his mustache, or on the recommendation of some foolish or ignorant woman, they will receive what they deserve. If they desire competent attention they should go to conscientious medical men for advice."

Some one has divided those general practitioners doing obstetrical work into the "man-midwife" and the obstetrician. The man-midwife is the term applied to those of us who "can conduct a case satisfactorily if it is ended by the unaided efforts of nature, or merely requires some slight interference." The obstetrician is one capable of managing any complication or emergency coming up in the course of labor. It is essential that he be a competent surgical operator.

"The number of radical operations in obstetrics is comparatively limited, hence the most natural method of obtaining the requisite facility is my means of gynecologic surgery. One may be a fair gynecologist with only an elementary knowledge of obstetrics, but no one can be a competent obstetrician without being at the same time a trained gynecologist."

In the definition of the man-midwife he was spoken of as one who could satisfactorily conduct a normal case of labor. As I understand it, to satisfactorily conduct a normal case of labor means to throw around our patient every protection necessary to prevent this physiologic process from becoming a pathologic one. In the eyes of the better men of today obstetrics has attained the dignity of surgery, and they maintain that the parturient woman should enjoy the same benefits as the surgical patient.

The satisfactory conduct of normal labor, then, involves a knowledge of surgical technic; of asepsis and antisepsis, in reference to the physician, the patient and the environment. The same minute attention to detail is required as for an abdominal section.

These are the ideas of the better men of the day, and this is the consensus of opinion of the obstetricians throughout the United States—men who have devoted their lives to this subject, men who are in a position to know.

The best article I have ever read on an obstetrical subject is one written by J. Whitridge

Williams on "Medical Education and the Midwife Problem in the United States."

Many of the ideas in this paper were taken from his article, and I have quoted Dr. Williams very freely in this paper. Dr. Williams has compiled valuable statistics on this subject. He has demonstrated facts that should cause us all to think deeply. He has clearly shown that obstetrics in this country, as compared to the other branches of medicine, holds a somewhat degraded position. The article clearly demonstrates the necessity for reform. He has advised much needed reforms and suggested measures which if properly and promptly carried out, should revolutionize the practice of obstetrics.

If the definition of the man-midwife given in this paper is a correct one there are many of us who are unable to qualify as men-midwives; and I think I am correct when I say that only a limited number of the general practitioners are able to qualify as obstetricians.

It has been my experience that a large number of labors in the rural districts and in the smaller towns, both among whites and negroes, are conducted by the midwife.

My paper would scarcely be complete without brief reference to the midwife. We all have to admit that she is a necessity. She has a mission to fulfill, and every doctor should consider it his duty to raise the standard of those now officiating in this capacity by instructing and teaching them whenever an opportunity presents itself.

A few of those I have come in contact with have demonstrated the fact that they are conscientious, and are well worthy of some consideration from the doctor.

Some of them do not attempt to make examinations, and as soon as they learn that the case is an abnormal one, send for a doctor. Every time we come in contact with the midwife we should endeavor to teach her the rudiments, at least, of cleanliness. We should assist her in making out birth certificates, and insist that she report them promptly to the county health officer.

Indeed, it has been suggested by eminent authorities that the collection and general dissemination of accurate statistics concerning the mortality of childbirth, as well as the injuries and illnesses which result from improper care, is one of the most practical methods of improving the general standard of obstetrical management outside of hospitals.

In conclusion, I will say that I have learned from personal observation of existing conditions as seen in my private practice, in consultation with other men, and from conversation and correspondence with the better men throughout this state, that the present state of affairs in regard to obstetrical management in Alabama is, to say the least, most unsatisfactory.

However, I have learned from correspondence with some authorities on this subject that this deplorable condition is not limited to Alabama, but "is widely spread throughout the country."

In an analysis of the present situation by an authority it has been shown that "many of the medical schools in this country are inadequately equipped for this work, and are each year graduating hundreds of young men whom they have failed to train properly for the practice of obstetrics, and whose lack of training is responsible for unnecessary deaths of many women and infants, not to speak of a much larger number more or less permanently injured by improper treatment."

This same authority states that he has no intention of condemning all practitioners, but that he knows of many who, "from natural ability or extensive experience and study, are thoroughly accomplished in the management of all but the most complicated cases."

The average practitioner is not entirely to blame for his ignorance in obstetric matters, as he is usually as benevolent, as intelligent and as anxious to do good work as his more

expert confreres. "The fault lies primarily in poor medical schools, in the low ideals maintained by inadequately trained professors, and in the ignorance of the laity."

Some necessary reforms which have been suggested are:

"1. Better and properly equipped medical schools.

2. Higher requirements for the admission of students.

3. Scientifically trained professors of obstetrics.

4. Education of medical practitioners.

5. General elevation of the standard of obstetrics.

6. Insistence by state examining boards on better training before admitting applicants to practice.

7. Education of the general public.

8. Development of lying-in charities.

9. Cheaper nurses.

10. Possibly the training of midwives."

The mere number of these reforms indicates how serious the problem is, and how impossible it is to consider them all at the present time.

Were I to ask how many of you gentlemen here today are interested in the welfare of the women and children of our country, you all would no doubt answer in the affirmative, and yet we must admit that the present status of obstetrics in Alabama is deplorable.

What may we do to remedy this condition in Alabama?

A few suggestions and I have finished.

1. The collection and general dissemination of accurate statistics concerning the mortality of childbirth, as well as the injuries and illnesses which result from improper care.

2. The organization of an Alabama Obstetric and Gynecologic Society, whose object shall be the general elevation of the standard of obstetrics in this state.

3. Education of the general public.

4. Insistence by the State Examining Board on better training before admitting applicants to practice.

5. A resolve by every doctor in the state of Alabama that he will strive harder every day to maintain a careful obstetric technic, and that he will not attempt obstetrical operations for which his training has not fitted him, and in which his skill is questionable.

Gentlemen of the Medical Association of the State of Alabama, the remedy lies in your hands: What will you do about it?

CAESAREAN SECTION IN ECLAMPSIA.*

By H. R. Shands, B.A., M.D., F.A.C.S.
Jackson, Miss.

Eclampsia, long ago called the disease of theories, may still be so called. A perusal of the recent literature on eclampsia, which is very voluminous, proves one thing certainly, that it makes no difference what strange and fantastic ideas one may have concerning the etiology and treatment of eclampsia, he can easily find distinguished authority to support his ideas.

Stroganoff has recently reported 400 cases with a maternal mortality of 6 6-10 per cent under his conservative treatment of chloroform, chloral, morphine, darkened room, quietude, etc., without operative interference.

Lichtenstein had sixty consecutive cases with no deaths. This most wonderful success he attributes to blood-letting with practically the Stroganoff treatment.

A few radical German surgeons have attributed eclampsia to an intoxication with colostrum, and accordingly have advised and practiced amputation of the breasts for its relief, claiming good success. Others liken eclampsia to the puerperal paralysis in cows and have

*Read before Hinds-Rankin Medical Society. Jackson, Miss., May 12, 1914.

used the highly efficient veterinary practice of injecting oxygen, or air, into the breasts.

Eclampsia has been considered on good authority to be due to greatly increased intracranial pressure, accordingly the votaries of this belief have done cerebral decompression operations, lumbar puncture, etc.

Norwood's tincture of veratrum viride has its loyal supporters. In fact, if one attempted to discuss thoroughly the various theories and practices related to eclampsia his task would know no end.

Zinke states that 30 per cent of the cases of eclampsia occur during labor, 50 per cent antepartum in the eighth and ninth months, and 8 or 9 per cent post-partum. Post-mortem changes are found in the brain, cord, liver and kidney.

Most American authors advocate prompt delivery upon the advent of eclampsia. Peterson states, the treatment of ante-partum eclampsia should consist of emptying the uterus as quickly as possible after the first convulsion. The operative procedure that will empty the uterus most quickly, with minimum trauma and shock to the eclamptic mother and child is the one to be selected.

Gibbons writes, "In spite of all the labor which has been spent upon investigations, nothing can be definitely stated about the cause of the disease, although everything seems to point to a poison circulating in the blood. Without any doubt recent statistics show that the best treatment is that of rapid emptying of the uterus after the first few convulsions. The greater the delay in carrying out this treatment after the onset of the first convulsion, the greater will be the danger to mother and child."

Moran makes the following very conclusive observation: "Upon whatever theoretical basis we may predicate the etiology of eclampsia, whether the foetal, maternal or combined origin, the one incontrovertible fact remains, that pregnancy at least is necessary, for without pregnancy there can be no eclampsia."

The ideas thus expressed coincide entirely with mine. I have taken the words from the pens of these distinguished gentlemen, so that my argument might carry the greater conviction.

Given in eclampsia an undilated cervix in an uninfected woman there can be no doubt that caesarean section offers the operative procedure which can be done most quickly with minimum trauma to mother and child.

Below I report two cases which I have been given the opportunity to treat by this method:

First Case—Mrs. U. When first seen the patient was unconscious with eclampsia, having had two convulsions. This was the patient's fourth pregnancy. She was about full term, and had not consulted any physician during this pregnancy. The family stated that she had been suffering with headaches and swollen feet for two weeks. The first convulsion occurred at noon, and we saw her at 1:00 p.m. No labor pains had occurred. A vaginal examination was made, a sterilized glove being used for this purpose. The cervix was entirely undilated and a caesarean section was decided upon as the best treatment. The patient was immediately put into our automobile and carried two miles to the hospital. She had another convulsion just as we arrived at the hospital, making three before the operation was done. The section was performed immediately, about three hours after the first convulsion. Ether was given, as little as possible being used, and a classical abdominal section done. A living child was delivered. The patient stood the operation very well. She regained consciousness 24 hours later, but was totally blind and remained so for two weeks. Convalescence was complicated by a mild but typical phlegmasia alba dolens in the right leg. The patient had suffered with this after a former labor. Mother and child left the hospital in very good condition four weeks later. The urine in this case was highly albuminous, and all manner of casts abounded. Red blood cells were also present. Eight months later the child is thriving and the mother's health very good, though she now presents some symptoms of chronic nephritis.

Case 2—Mrs. B. Operated upon September 20, 1913. This was one of my private cases, which I had watched all through pregnancy. When she was 7½ months pregnant albumen first appeared in her urine. She was immediately put upon a strict diet, Stafford water, calomel, etc. Notwithstanding this, the albumen persisted and slowly

increased in amount. Otherwise the patient suffered no discomfort until the day of her convulsive seizure. She had none of the usual premonitory signs of eclampsia until this day. On September 20 I was called to her at noon on account of a violent headache. At 5:00 p.m. she had a hard convulsion. An ambulance was immediately summoned and the patient carried to the hospital. She had another convulsion—the third, just as she was put upon the operating table. There had been no labor pains and there was no dilatation of the cervix. We proceeded at once to do an abdominal section under local anesthesia, using novocain and adrenalin. We had surprisingly little trouble, and no pain to speak of. This patient had seven convulsions following the delivery, and was not entirely rational for two days. She had almost entire suppression of urine for eighteen hours. The small amount of urine she did pass was almost pure albumen and loaded with casts. The baby was born alive and has remained perfectly well. This patient had an uneventful convalescence, with the exception of the convulsions, which lasted 36 hours. She left the hospital in an ambulance ten days later. She and baby are now absolutely well.

Post-operative, these patients were propped up in bed and given a continuous drip of Stafford water without salt. Morphine and chloral were used according to indications.

Our experience in the last case has led us to the firm belief that the correct treatment for eclampsia when the cervix is not dilated or readily dilatable and in an uninfected woman, is Caesarean Section with local anaesthesia. If the vagina is possibly contaminated vaginal section should be looked upon with more favor than the abdominal. Local anaesthesia would hardly be indicated in vaginal section on account of the difficulty of the delivery after the section was made.

Local anaesthesia is especially indicated in abdominal section for eclampsia. The patient's stupurous condition helps greatly with the local anaesthetic. A foetus in utero may be considered if you will pardon the expression, as an encapsulated pedunculated tumor with the umbilical cord for a pedicle and the abdominal wall and uterus as the capsule. In doing the operation no dissection, retraction or exploration is necessary. Simply a four-inch incision through two thin structures with the lifting out of the tumor and the suturing of the capsule. Any general anaesthetic in eclampsia has of course some real dangers connected with its use.

I cannot favor the common use of local anaesthesia in abdominal work for the reason that no thorough exploration of the abdomen can be made with it, and incomplete and unfinished surgery must result from its use. For one properly equipped to do major surgery abdominal section with local anaesthesia offers a valuable means of treatment for some eclamptic woman.

DIAGNOSIS OF FIBROID CONDITIONS OF THE UTERUS AND THE IMPORTANCE OF EARLY SURGICAL INTERFERENCE.*

By Arthur W. Ralls, M.D.,
Gadsden, Ala.

Apropos of an intense interest in this subject and observations that convince me we are often dilatory in advising timely operation, I was prompted to discuss fibroid conditions of the uterus. The facts brought out in this paper are ideas of men whose findings have been verified by operation and pathological study, and they are intended to be of some value to the general practitioner who does not always see his diagnosis of a surgical condition confirmed in the operating room.

A few cases that have come under my personal observation will be mentioned on account of the presence or lack of certain symptoms which deviate somewhat from the regular train of symptoms in routine text-book teachings.

It will be necessary to briefly mention the symptoms of fibroid conditions of the uterus. You will note that I say fibroid conditions of

*Read before the Medical Association of the State of Alabama, Montgomery, Ala., April, 1914.

the uterus instead of "fibroid tumor." This term is supposed to cover two distinct classifications—namely: (a) fibroid tumor, (b) fibrosis uteri; the first meaning well-defined tumor of the uterus, and the second meaning a fibroid degeneration of the uterine connective tissue, usually involving the entire uterus. I wish in this paper to lay special stress on the symptom of hemorrhage in its different phases and to a condition known as essential hemorrhage. This last condition is referred to often by writers on this subject and I am led to believe that it is nothing more nor less than a hemorrhage due to some form of fibrosis.

How many of us have seen cases of excessive menstrual flow (not necessarily irregular) where there is absence of tumefaction and absence of pathologic conditions of the endometrium, absence of anemia, absence of other constitutional disturbances, and yet the patient bleeds profusely at each menstrual period?

Too often the practitioner listens to a history of prolonged menstrual period, with an increased relative flow, and because there is not irregularity or probably a gushing hemorrhage, or in the absence of marked constitutional symptoms of tumefaction, or a pathologic endometrium, etc.; he decides that it is an "essential hemorrhage" literally applied, and that it is a condition peculiar to this particular patient, and that the laws of nature will sometime right the trouble, especially with the help of hydrastis, ergot, etc., etc. The average duration of a menstrual period is about four days, and a patient, young or old, who continuously and persistently exceeds this time, also with increased relative flow, should at once be suspected of radical structural change in the uterus, provided the history and physican findings eliminate deciduoma, defibrinated blood, ectopic, hematoma of the tube, etc.

SYMPTOMS.

The leading symptom in fibroid conditions is bleeding.

When metrorrhagia appears we look for one of four things:

(a) Degenerative muscle fibre poor in contractile power.

(b) Increased amount of fibrous connective tissue.

(c) Increased elastic fibre thickened and brittle.

(d) Arterio-sclerotic vessels.

This is true provided no changes are found by the sound or examining finger in the endometrium, or that no pathology is found in any scrapings from the endometrium. The too common idea that we should look only in those approaching the menopause for fibroid conditions should be dissipated. Age is no criterion. Menstruation is the only normal bleeding from the uterus. "Every other strong menstruation or irregular bleeding must be viewed as pathologic."

"The diagnosis of fibroids and fibrosis-uteri is made partly by elimination. If on examination the uterus be found enlarged the following conditions must be looked for: Myoma or sarcoma of the uterine wall; carcinoma, sarcoma, or polyp of the endometrium; chronic metritis with endometritis; the complications of pregnancy, such as endometritis, placenta-previa, abortion, retention of placenta, or decidua, chorioepithelioma, subinvolution and ectopic gestation."

"If the uterus be not enlarged, there may be present endometritis or a malignant change, or a degeneration of myometrium, or ectopic gestation.

Bleeding may be due to physical disturbances or to nervous or temporary circulatory phenomena.

Bleeding in the early weeks of pregnancy means endometritis, decidua, or ectopic gestation.

Pain is associated with abortion, ectopic gestation, the expulsion of clots, and an inflammation.

The sound shows the size of the uterine cavity, the smoothness of the lining, presence of

foreign bodies, or sensitiveness of the lining."

Purulent discharge means an inflammation.

"The character of the blood is important. A gushing hemorrhage means an open vessel, as in abortion, malignancy, and polyp. Blood passing in clots implies rapid bleeding; so rapid that the uterine secretions cannot prevent the clotting. This may be found in fibroids, carcinoma, polyp and abortion. A dirty brown red discharge means long retention in the uterus as is seen in some conditions related to pregnancy. A syrupy, thick discharge means hematocolpos. Irregular bleedings without leukorrhea, where there is no evident cause for hemorrhage, with normal endometrium and normal adnexa, means fibrosis-uteri, metritis or arterio-sclerosis. Abnormal bleedings which occur after the menopause are carcinomatous in 65 per cent of cases, but may be due to ulceration, erosions, copitis senilis, polyp or fibro myoma. The frequency of childbirth has little effect in bringing about fibrosis. The bleedings of the menopause are natural. A mother who menstruates again regularly six months after supposed cessation should be classed as pathologic and would indicate myoma, carcinoma or endometritis. The cases of hemorrhage or change in the endometrium and without the presence of new growths is usually due to fibrosis-uteri, but could be caused by degenerated myometrium, or local uterine atrophic changes caused by the cessation of trophic function on the part of the ovary and its secretions."

Iterstitial fibroma is of very hard consistency, known from chronic metritis by the even enlargement of the latter and the thickening of the cervix. A sound may be passed into the uterus and the uterus palpated through the abdomen, which discloses the even and uneven thickening of the uterine wall. The uterus enlarges and the uterine cavity lengthens and widens. Fibroma may occur in the cervix and not in the uterus.

Diagnosis from pregnancy in the early months may be difficult, especially from pregnancy with dead fetus.

Sub-serous fibroids are pedicled. They may become entirely separate from the uterus and develop in the ligament. The uterine cavity is always enlarged unless the tumor is pedicled, then we feel the natural contour of the uterus and also feel the knobs.

Sub-mucous fibroids grow toward the uterine cavity. In this case also the cavity is lengthened and widened. The sub-mucous type bleeds most. The uterus is enlarged and round, and the portio is felt to pass over into the enlarged uterus. The uterus may dilate and obliterate the cervix.

The myomatous uterus is harder than the pregnant uterus, and is usually more immobile.

A retro-uterine fibroid must be diagnosed from a retroflexed uterus by a rectal examination and the sound.

The finger may be passed into the cervix during menstruation and determine the sub-mucous fibroid.

Now as to the dangers of delay in advising surgical treatment in a case of fibroid or fibrosis:

(a) A slow and sure debility due to exsanguination.

(b) Dense adhesions often involving the ureter and the coils of intestines.

(c) Nervous symptoms arising from impaired assimilation and impaired cell function.

(d) Cardiac changes.

Boldt says: "The close relation between myomata and cardiac degeneration has been frequently alluded to by gynecologists for many years. Cardiac changes in women having fibro-myomata occur too often for one to simply consider them as a mere coincidence." He further says: "One must regard the degenerative condition of the heart muscle as being to a large extent, if not entirely, a cause of fatal termination. Observers agree that the

degenerative changes in the heart and circulatory system are more dangerous to life than the degenerative changes in the tumors themselves." Fleck states that "myofibrosis of the heart may occur as a cardiac lesion in connection with myomatata of the uterus, and that the lesion in connection with myomata resembles that of myocarditis."

The following symptoms are often present in these cases due to cardiac changes: Dyspnoea on exertion, a small, rapid pulse with arrhythmia, irregular pulse, hard pulse, occasional attacks of angina pectoris, and sometimes albumen and casts. In some cases there is pain on pressure over the second sterno-intercostal space and also pain on pressure over the apex. Cardiac palpitation is also present in many cases. Cardiac degeneration favors renal changes and changes in the blood vessels may give rise to emboli.

CASE REPORTS.

Case No. 1.—Mrs. C., age 34, married six years, no children, no miscarriages, no irregular bleeding, but prolonged periods with increased relative flow, period usually lasting about seven days. One month before operation she had an extreme hemorrhage lasting about five minutes which prostrated her completely, and on examination a large interstitital fibroid was discovered. On the 6th of June, 1912, I did a panhysterectomy. The broad ligaments were very much thickened and the tumor was large. Dense adhesions had enveloped the right ureter and lifted it very high as the tumor enlarged. The mass in this neighborhood was beginning to break down, and in dissecting out the ureter I left considerable tissue around it. On the fifteenth day after operation the ureter ruptured, and on account of the broken-down tissue I did not attempt plastic work, but removed the kidney.

Case No. 2.—Mrs. W., age 28, married four years, living child two years old, no miscarriages. History of prolonged menstruation and increased amount of flow. This had been present for about four years. Debility and loss of weight had been excessive for the past eight months before operation. She had been diagnosed by several physicians as having a left ovarian cyst. Uterus was enlarged slightly and the mass appeared principally in the left side. A history of extreme nervousness for two years was present and at time of examination a decided icterus. There had been no pain. The mass was soft to the outer touch and the uterus was freely movable. A positive diagnosis of fibroid was not made. The abdomen when opened disclosed a small sub-serous fibroid in the fundus near the left cornua. The tumor was not pedicled and was about the size of the uterus. In this case I believe the age of the patient had thrown the examiner off his guard each time.

Case No. 3.—Mrs. G., age 24, married two years, no confinements, no miscarriages, personal history negative, examined a year before operation by the writer and presented a slightly enlarged soft uterus and was suffering with prolapsus. A Hodge pessary was placed and worn six weeks without other treatment. Patient had progressive debility and loss of weight for four months preceding the 26th of March, 1914, on which date I was called to examine her. It was the sixth day of her natural period and the flow had been very immoderate. History showed prolonged periods and excessive flow, but no irregularity for the past twelve months. On the following day pain became very intense and symptoms appeared similar to labor pains. There were no symptoms of pregnancy present. On examination the uterus appeared large, rounded and more or less immobile, extremely painful to the touch. The cervix was not obliterated, but the mass approximated a uterus at about three and one-half months' gravid. A laparotomy was advised and was carried out the following day. The uterus appeared very much congested, but not so firm as on digital examination. The writer and three consultants were positive that pregnancy did not exist and a partial hysterectomy was done. The womb was found to contain a large sub-mucous fibroid that had been forced well into the uterine cavity. This was a case that most any physician without examination would have called an essential hemorrhage.

Case No. 4.—Mrs. M., age 34, married 18 years, one child 12 years old, personal history negative, except prolonged menstrual flow and occasional irregular flow, no miscarriages. She appeared at all times well nourished and devoid of constitutional symptoms, except cardiac palpitation. In the summer of 1907 I removed two large fibromyoma from the right mammary gland and three from the left. In June, 1909, two years later, she gave birth to a son, and at this time during the accouchment I discovered that she also had a uterine fibroid. Her pregnancy and delivery appeared entirely normal. Following this confine-

ment the menstrual period became much more excessive and appeared at shorter intervals. Debility and loss of weight also presented. In June of 1910, one year following confinement, I did a hysterectomy. This disclosed a large sub-serous fibroid entirely encapsulated in a shell which appeared to be calcareous. Following recovery the cardiac symptoms disappeared altogether.

Case No. 5.—Miss D., age 35, virgin, personal history entirely negative with exception of "flooding spells" at her regular menstrual period, also gastric disturbances and beginning nervous sensations. She had discovered some abdominal enlargement, although she was not gaining flesh. On examination a large uterus was felt with a normal cervix. The contour was even and she had suffered no pain or discomfort. Constipation was present from pressure on the sigmoid-flexure. It was very easy to determine on palpation that the consistency meant a fibroid condition. I advised a laparotomy, which was performed in July of 1913, disclosing a general fibrosis of the uterus. A panhysterectomy was done. This patient lived with her uncle, who was a physician, and he had never considered it necessary to have an examination made, but thought that her increased flow indicated an early approach to the menopause.

DIAPHRAGMATIC HERNIA, WITH REPORT OF A CASE.

By Stuart McGuire, M.D.,
Richmond, Va.

Diaphragmatic hernia is the protrusion of one or more of the abdominal viscera into the pleural cavity through an opening in the diaphragm.

The opening may be a defect in development, a dilatation of a normal aperture, or a rupture due to traumatism. Therefore diaphragmatic hernias may be either congenital or acquired.

In ten per cent of cases the herniated mass is enclosed in a peritoneal sac, but in ninety per cent of cases the viscera lie bare in the pleural cavity, hence in a strict sense these hernias may be divided into true and false.

According to statistics diaphragmatic hernia occurs on the right side in eight per cent of cases, and on the left in ninety-two per cent of cases. The relative immunity of the right side is largely due to the presence of the liver which acts as a buffer and protects the diaphragm on that side from the effects of increased abdominal pressure and closes effectively any rupture that may occur.

The abdominal organs most frequently found in a diaphragmatic hernia are the stomach, colon, small intestines and omentum in the order named. Almost every abdominal organ, however, except the rectum and pelvic viscera has been found in one or more of the cases that have been recorded.

Diaphragmatic hernias are not common, but they occur with sufficient frequency to make it necessary to bear the condition in mind when making a diagnosis in an obscure case. At the time of the publication of Giffin's paper in the Annals of Surgery for March, 1912, six hundred and fifty cases had been reported, but most of these were either congenital hernias occurring in babies or symptomless hernias discovered at autopsy. According to Giffin, only fifteen cases of diaphragmatic hernia had been correctly diagnosed during life.

The recognition of the condition is based on a careful inquiry into the patient's previous history, especially with reference to injuries, on a thorough physical examination of the chest, and on radiographic and fluoroscopic examinations after the ingestion of a bismuth meal. The conditions most difficult to exclude in making a differential diagnosis are pneumothorax and eventration of the diaphragm.

The treatment of diaphragmatic hernia is essentially surgical. While patients with the trouble have been known to live for years, sooner or later they all develop obstructive symptoms, inflammatory complications or strangulation with gangrene.

Two exploratory routes have been recommended to reduce the hernia and repair the tear in the diaphragm—the thoracic and the abdominal. Those who favor the thoracic

route claim that the adhesions can be more safely separated, that the diaphragmatic opening can be more easily sutured and that by the entrance of air into the pleural cavity the negative or suction power of the thorax is abolished so that replacement of the viscera is less difficult.

Those who favor the abdominal route claim that a considerable number of hernias can be reduced without opening the thorax, and that it is not wise to collapse the lung if it can be avoided. Also that the viscera injured from strangulation are the abdominal organs and that they can be better repaired through an abdominal incision.

Fig. 1. Radiogram before operation, showing stomach in left pleural cavity.

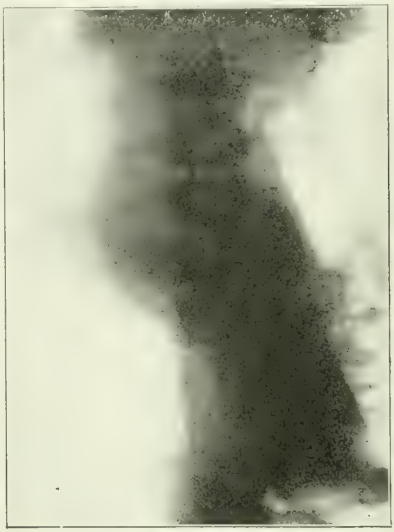

Fig. 2. Radiogram before operation, showing passage of stomach through tear in diaphragm.

The following brief quotations from various authors will show the evolution of surgical opinion on the subject of diaphragmatic hernia during the last twenty-five years.

Holmes' System of Surgery, published in 1881, contains the following: "We are silent on the subject of treatment. We can not hope to close the aperture in the diaphragm by any measures which science or mechanical surgery would justify; could we accurately detect the existence of a protrustion it were in vain to attempt its reduction with any benefit to the patient or credit to ourselves."

Von Bergmann's Surgery, published in 1904, states: "Up to this time no radical operation has ever been performed for non-strangulated hernia in this region, although an operation is indicated provided the diagnosis is certain."

Fergusson in his book, Modern Operations for Hernia, published in 1907, says: "The presence of diaphragmatic hernia is seldom discovered during life. In but seven of the two hundred and sixty-six cases reviewed by Lachner was the diagnosis made ante-mortem. If the hernia is incarcerated I believe the thoracic route the preferable one, but in a

case where the hernia is inflamed, ulcerated, strangulated or gangrenous when a resection of the bowel must be done the thoracic insures less tendency to infect the peritoneal cavity."

Ochsner in his Clinical Surgery, published in 1911, says: "Diaphragmatic hernias are very rare, and when they do exist are seldom discovered before the abdomen is opened. The majority of cases that have been reported have been found at post-mortem. Diaphragmatic hernia may be congenital or acquired. The congenital variety is rarely amenable to surgical treatment because so great a portion of

Fig. 3. Cut showing incision in operation by Thoracic Route (copied from Binnie).

the diaphragm is absent that it is impossible to close the large opening. The acquired variety may frequently be benefited by operation."

Mumford in his book on Practice of Surgery, published in 1911, says: "The treatment of strangulated diaphragmatic hernia is obviously to open the abdomen and treat the viscera as the conditions indicate. Hitherto no operation is reported as performed upon a non-strangulated diaphragmatic hernia."

Binnie in his Operative Surgery, published in 1914, says: "Of the cases of strangulated diaphragmatic hernia collected by Neugebauer all those operated on through the abdominal route died; one out of two operated on through the thorax lived. The only two cases of non-strangulated diaphragmatic hernia submitted to radical cure (Llobet's and Cranwell's) lived after a trans-thoracic operation."

Doubtless some cases of diaphragmatic hernia have been operated on and not reported, and other cases have been operated on and recorded since the statistics quoted were

Fig. 4. Radiogram after operation, showing stomach in normal position.

compiled, still the total number of operations is so small that I feel justified in reporting the following case:

B. D., male, aged 19; entered St. Luke's Hospital April 10, 1914, referred by Dr. J. B. Catlett, of Staunton, Va. Patient stated that four months ago as he came out of a pool room he met a man with whom he had quarreled earlier in the day, who struck him with great force in the epigastrium with a bottle. The blow knocked him down and his antagonist jumped on him and cut

him on the left side of the neck, on the outer side of the left arm, and finally stabbed him in the posterior axillary line about the third intercostal space on the left side of the chest. The patient bled profusely from the wounds, vomited blood and later passed much blood by bowel. The incisions were sutured without an anesthetic and the patient put to bed. For three days he was unconscious. He finally began to slowly improve, but for three weeks he could take no food by mouth and had to be sustained by nutritive enemata. He then became able to swallow and retain liquids. If he attempted to eat solids, however, he experienced a sensation as though the food stopped before it reached the stomach, and he would spit or vomit it up shortly after swallowing it.

When the patient was brought to Richmond he was very weak and anemic and had lost about fifty pounds in weight. Physical examination of the chest showed the heart markedly displaced to the right and a tympanitic percussion note with absence of breath sounds from the fifth rib down on the left side. An attempt was made to pass a stomach tube, but it met with a complete block 17 1-2 inches from the incisor teeth.

A mixture of bismuth and buttermilk was given slowly and after about eight ounces were introduced into the stomach several radiograms of the abdomen were made by Dr. A. L. Gray. The history, symptoms, physical examination and X-ray findings all pointed to diaphragmatic hernia, with escape of practically the entire stomach into the left thoracic cavity.

An operation was advised and agreed to. It was determined to adopt the transpleural rather than the abdominal route, as the hernia had been in existence for four months, and it was believed that the adhesions between the stomach and the viscera of the chest were so strong and numerous that they could not be safely separated except under direct inspection.

The patient was placed on the table in the reverse Trendelenburg position in order to minimize the possible shock from the sudden admission of air into the pleura.

The incision was made after the method suggested by Cranwell. The lower and lateral part of the thorax was opened by a flap having its base above, consisting of the whole thickness of the chest wall and containing about five inches of the eighth and ninth ribs. As soon as the parietal pleura was opened the stomach presented itself. There were numerous adhesions between it and the pericardium and collapsed left lung. These were carefully separated, several attachments requiring preliminary ligature.

A very dense and firm adhesion was found between the cardiac end of the stomach and the postero-lateral surface of the chest wall just opposite the stab wound. This was peeled loose after considerable effort and there was at once the escape of some stomach contents. The stomach was delivered through the opening into the thorax and an incision three inches long found on its anterior surface beginning near the oesophageal opening and extending in the direction of its greater curvature. The edges of this incision did not bleed and showed evidences of cicatrization, hence it seems reasonable to believe that the rupture of the diaphragm and hernia of the stomach resulted from the blow and injury inflicted on the abdomen prior to the cutting, and that when the stab wound was made in the third intercostal space the vulnerating instrument cut the stomach which was already in the left thoracic cavity.

The opening just described in the stomach was sutured in the usual way, and then the adhesions to the stomach where it passed through the diaphragm were separated, and the stomach replaced in the abdomen.

The rupture in the diaphragm was about four inches in length, beginning near the oesophageal opening and extending through the left leaf toward the sternum. The tear was repaired with two tiers of chromic catgut sutures. A rubber drain was then placed in the pleural cavity and the opening in the chest wall closed. The operation while spectacular was not difficult and was completed in fifty-five minutes. There was little bleeding and no appreciable shock. The patient did not suffer from nausea, and begged for a cigarette as soon as he became conscious. Liquid nourishment was given the following day. At the end of a week the patient was placed on general diet and from the first swallowed and retained solid food without difficulty.

He gained weight at the rate of a pound a day and left the hospital in four weeks after the operation. A radiogram taken just before the patient was dismissed showed the stomach in its normal position, the heart almost back in its proper place, but the collapsed lung not yet fully expanded.

THE FACTORS NECESSARY TO MAKE CORRECT SURGICAL DIAGNOSES: SOME CLINICAL CASES ILLUSTRATIVE.*

By E. Dunbar Newell, M.D.,
Chattanooga, Tenn.

On a recent visit to the surgical clinics of the East and West I was very much impressed with the number of errors in surgical diagnosis that I saw at these clinics. In Chicago I saw one of their noted surgeons operating at one of their largest hospitals, attempt to remove the right kidney. He found that the patient had a horse-shoe kidney, so he closed the wound and did nothing. A more careful diagnosis would have prevented this blunder. In Philadelphia I saw one of the most noted of American gynecologists open the uterus through the abdominal route to remove a supposed sub-mucous fibroid, and instead he removed the products of a three-months' pregnancy. He should have made his diagnosis before opening the abdomen; it was unpardonable when he had the uterus in his hand. He was so sure of the correctness of his diagnosis that he locked out of consideration any other idea. Again in Philadelphia, at one of the best hospitals in America, I was shown two cases of typhoid fever in adjoining beds that had been operated on for appendicitis under a mistaken diagnosis. In the first instance the operator frankly acknowledged that he had not spent enough time making a diagnosis and had not used the facilities for making a diagnosis that the hospital supplied. In the second case the operator made no apology or explanation, he was too obsessed with his infallibility. The two appendicitis cases showed that not enough time nor enough pains had been taken—some one was too confident of his skill as a diagnostician. A careful blood count would have shown an absent leucocytosis, and that meant no appendicitis, certainly not an acute inflammation of the appendix. In those violent cases of general peritonitis from a ruptured appendix, and the authentic types of appendicitis, you do not have a leucocytosis, but you would not likely mistake this condition for typhoid fever. In every obscure surgical case a total blood count and a differential leucocyte count should be as much of a routine as the examination of the heart and kidneys. In suppuration around the kidneys, in the liver, in the cranial sinuses, or an osteo-myelitis might not give, by the ordinary methods of examination, but a slight indication of the very destructive infection that would be readily revealed by the blood count. These cases tell us that we all are making incomplete, faulty or erroneous surgical diagnoses all the time. The percentage of errors is daily decreasing, and especially is this so where men are intently specializing, and are thoroughly mastering their subjects, and are keenly alive to the work that is being done in all the other branches of medicine and surgery, and who can appreciate the assistance that they can receive from the other men doing special work in other branches. A past or present intimate knowledge of both general medicine and general surgery, a lively acquaintance with anatomy, a profound knowledge of physiology and pathology, a long and varied experience as an operator are some of the factors that are essential to make a keen, accurate diagnostician. History taking by the doctor who asks questions at random without a precise idea of what he wishes to bring out or proper appreciation of the significance of the data obtained, has very little value, but to the well informed doctor a definite, complete, incisive and exhaustive history is one of the most valuable of all factors to make correct surgical diagnoses. In speaking of diagnoses, Dr. John B. Murphy says:

"There is nothing so important or practical or intellectual in medicine or surgery as the

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interpretation of symptoms and physical signs into pathological entities. The mere operative procedure is of minor importance. If you were to ask me to recommend the best book on surgery, I would say that the best surgery is a good physiology, the best you can buy. The professor of physiology becomes the internist, the diagnostician, but the professor of physiology will sooner or later come into surgery as his own, not as high a calling as that of internal medicine, and not nearly as high as diagnosis."

Many apparently complex cases can be easily, quickly and accurately diagnosed by a few well-directed questions. A few cases will illustrate this point:

Case No. 1—A woman with a young baby was presented to a clinic for diagnosis. She was pale, anaemic, had lost weight and had a severe cough, and her right elbow was swollen and tender. A surgeon at the clinic, after making a physical examination, diagnosed it as tuberculosis of the joint. A few pointed questions without any physical examination would have diagnosed the case easily. After taking a short history we found, first, that the swelling began in right shoulder and that it later went to the elbow, and that the first swelling appeared three weeks after birth of baby. Tuberculosis of the joint comes slowly and insidiously, metastatic infection quickly; tubercular joint infections have no tendency to jump from joint to joint, but in metastatic arthritis this is the rule. An infection coming on twenty-one days after birth of child pointed unerringly to gonococci as the cause of the swollen joint. An arthritis which is due to gonococci appears in from eighteen to twenty-two days after the primary infection or in eighteen to twenty-two days after an exacerbation of same. The labor produced the exacerbation in this case. The woman's general condition indicated tuberculosis, and she may have had pulmonary tuberculosis, but the short history told us she had a metastatic infection of the joint, and that the offending organism was the gonococci.

Case No. 2—A young woman had a very tender left shoulder joint, she could not move arm from side, and it had been in this condition for many weeks, the muscles surrounding the joint were atrophied, and the bones were very prominent as compared with the joint on other side. She gave a history of having had a slight injury just before the shoulder joint began to pain. It was many times diagnosed as a dislocation. Careful questioning brought out the fact that before the injury and before the pain appeared in shoulder that she had an inflammation of one of the phalangeal articulations. The subsequent history proved this to be a metastatic arthritis, which was focalized by the slight injury to the shoulder, and that the injury per se was only an incident.

Case No. 3—An anaemic young woman had an exquisitely tender, hot and swollen knee joint. She said she had fallen on the street and sprained her ankle and wrenched her knee. She had been confined to bed since the accident, and although the swelling in her knee did not appear for some

Case No. 2—Stone from Kidney

days after the accident, she was certain the swelling was due to the fall. When I saw her the ankle was only slightly swollen and tender, and there was no indication that she had a sprained ankle. After a few questions she acknowledged having a most profuse vaginal discharge, and a tender mass was found in right pelvis. The metastatic arthritis of the ankle was transient, then it went to the knee, the joint most frequently involved in Neisserian infection, and continued there for weeks, in spite of glycerin and formalin injections and the continued use of Buck's extension. This case had been diagnosed both as a tubercular joint and as a traumatic lesion. It was just another instance of the injury focalizing the infection.

Case No. 4—White boy, age 16, lives on farm,

has always been well and active. Eight days from the time I saw him in consultation he had lifted a heavy farm implement and he said he strained himself and felt some pain in right side of pelvis. In two or three days from the time of accident he noticed that he limped and that right leg was considerably longer than left. While lying on his back, both limbs extended, right leg was two inches longer than left when compared with other leg. When measured from internal maleolis to umbilicus there was still two inches of apparent lengthening of right leg, but when measurement was taken from the internal maleoli to the anterior superior spine, both limbs were exactly the same length, showing that the lengthening was apparent and not real. There was no pain except on deep pressure, on right side, and over femural ring, and when the limb was widely abducted.

Case No. 12—Tuberculosis of Cecum.

From the history of the injury and the appearance of the boy this looked like a possible dislocation of the femur or a secro-iliac slip, or a coaxo varo, but a careful measurement and X-ray pictures showed plainly that there was no dislocation or fracture and no slipping of the secro-iliac synchondrosis. It was evidently a coxitis—either one of those sudden onset tubercular varieties of coxitis or a coxitis due to metastatic infection, which had been focalized by the trauma. When the limb is fixed by muscular spasms, the pelvis is tilted up or down and the limb is apparently longer (if the hip is fixed in abduction) and apparently shorter if the limb is fixed in adduction. After two weeks of rest the pain and deformity both disappeared and the boy walked normally.

Trauma is the most common focalizer of these metastatic infections, and this is well illustrated by these four cases.

In every case of non-traumatic arthritis an exact and diligent history should be taken, as the time lapsing between the manifestation of the primary infection and the metastatic arthritis is fairly well known. This is true for metastatic infection from influenza, furnuncular infections and the mixed varieties of the extremities, the streptococci, typhoid fever, pneumonia, etc.

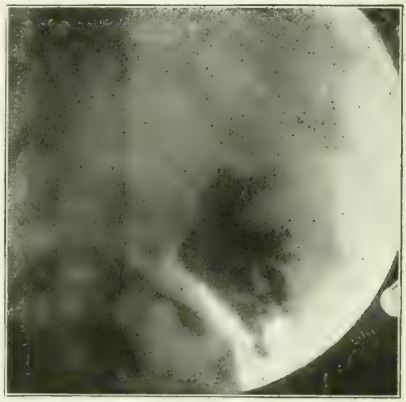
The most important factor in diagnosing cholelithiasis and cholecystitis is a carefully taken history; you can usually tell accurately whether the stone is in the gall bladder, the cystic duct or the common duct or whether the infection is confined to the gall bladder or has extended down into the cystic duct. In cholelithiasis, colicy pain in the epigastrium and the right hypochondrium followed in order by nausea and vomiting, then a dull aching pain and soreness are the cardinal subjective symptoms. The attacks of pain do not immediately follow or are they relieved by taking food. They nearly always give a history of long continued suffering, often with long intervals of entire freedom from pain. The patients usually describe their attacks as bilious colic. Stone in the gall bladder without infection may not cause any trouble at all. Four months ago I removed a large ovarian cyst with a twisted pedicle from a woman who was three months pregnant. In exploring the abdomen I found a very large stone in the gall bladder. She has never complained of any pain in the epigastrium or right hypochondrium, either before or since the operation, and she does not suspect that she has a stone in her gall bladder. I did not remove the stone, as I was anxious not to interrupt pregnancy. The colic indicates that the stone in the gall bladder has either blocked the outlet and caused distention of the gall bladder, or the stone is moving in the cystic duct or the common duct, or that there is infection in the

gall bladder. A very severe form of cholecystitis, which is confined to the gall bladder, will not give chills and high fever, temperature rarely goes beyond 100 degrees. The gall-bladder is so poorly supplied with lymphatics that very little absorption takes place. When the history tells of chills and high fevers we know that the infection has gone to the cystic duct, because the ducts are richly supplied with lymphatics and absorption is very rapid. The marked characteristics of this fever is that it rises very high, very quickly and very quickly subsides.

A stone in the cystic duct without infection does not cause jaundice, but with or without a stone, if we have infection in the cystic duct, we usually have slight jaundice, which is caused by extension of inflammation to the common duct, and thereby partially blocking the lumen of the common duct. Marked jaundice associated with pain, nausea and vomiting coming on acutely nearly always indicates stone in the common duct. Jaundice is not a symptom of stone in the gall-bladder and should never be so considered. Any history of past jaundice should always be carefully elicited, as this is always a serious symptom. The one physical sign of pathognomonic importance, if made during an acute attack, is the perpendicular percussion over the gall-bladder while patient is taking a deep inspiration. You should inquire diligently for a history of typhoid fever, as this is the greatest of all causative factors.

The following causes are illustrative of the value of a careful history in making a diagnosis and of locating the point of the lesion in the biliary tract:

Case No. 5—J. H. D., age, 37, policeman, had been advised to go to the hospital for operation for appendicitis. I saw him while he was just getting over an attack of colic, and while he was under the influence of morphine. He had pain in the epigastrium in the right hypochondrium, and over the right iliac fassa, and was nauseated and vomiting. Before making any physical examination I got the following history: No typhoid fever, no serious illness of any kind, no continued fever of any kind. In 1894 he had an attack of bilious colic, intense pain in the epigastrium, but no nausea and no vomiting, lasted only one-half an hour. Was entirely free from pain after the attack for two or three years. Then he had another attack exactly like the first one only it lasted a little longer, but still no nausea or vomiting. In 1898 and 1899 they began to come oftener, but still just pain without nausea or vomiting, and would last from one-half to an hour. Pain would always begin in epigastrium and then would radiate over right abdomen. Still in intervals he would be perfectly well and never conscious of any fever associated with the attacks. The attacks were not associated with the taking of food or the absence of food. The attacks gradually get oftener. For past two or three years would have them every two or three months. In January, 1913, had a



Case No. 2. X-Ray of Stone Shown in Accompanying Cut.

very bad spell, that lasted five or six hours, but still had no nausea or fever. During the last year he had four sick spells. February 8, 1914, had the worst up to that time, had to have two hypodermics of morphine to relieve the pain, and was nauseated and vomited during this attack, and had fever 100 degrees, but no chills. On March 13 had another attack, this time two hypodermics of morphine did not relieve, and this time had nausea, too, vomiting and fever of 100 degrees. No jaundice at any time, no chills, and never a high fever. It was on the decline of this attack that I first saw him, when he was advised to go to the hospital for operation. This very clear history that he gave me convinced me that he had cholelithiasis with infection of cholecystitis, and

that the infection was confined to gall bladder, even without the perpendicular percussion over the gall-bladder, which in this instance was so emphatic that he would never allow me to repeat the act.

At operation I found a very thick-walled gall-bladder, fully one-eighth of an inch thick, with omental adhesions all around, pus and serum in gall bladder, no bile, and 124 stones.

Case No. 6—Mrs. S. M. B., age, 51; weight, 255 pounds. Has never had typhoid fever. Since she was a child has had spells of bilious colic, the pain was located always just below ensiform cartilage. Was always nauseated and would vomit, and had to send for a doctor. After second child was born missed having these attacks for eight or ten years, and then they returned and would have them about once a year, and then every six months until last June, when she had a very severe spell with inflammation of gall bladder and very intense pain over gall bladder region. Since then she has had an attack every three or four weeks, and they have been very violent, always accompanied with nausea, vomiting and fever, but the fever was never over 100 2-5. The pain over the gall bladder has never disappeared since last June. Last November was in the sanitarium for operation, but developed a bronchitis and could not be operated upon. Since then the pain over gall bladder has been constant, and she could not stand perpendicular percussion at all, as she would cry out with pain when your finger approached the gall bladder locality. At operation I found a cholecystitis, but no stone. The gall bladder was tense and filled with a very dark colored, offensive bile and pus. For three days the bile discharged through the drainage tube, was almost black and as thick as tar, but it gradually grew lighter and thinner, until the tenth day, and she was discharging normal bile.

In appendicitis the history is important, but the physical findings at the bedside in an acute attack and the blood count are the important factors in the diagnosis. The history of previous attacks of pain in the right iliac fossa, with or without nausea, vomiting and fever, should always be sought for, but the immediate history of the present attack is far more important. Acute appendicitis begins with pain and is followed by nausea and vomiting and fever. It is rare indeed when nausea and vomiting do not follow the pain in acute appendicitis, and you should always have some fever with acute appendicitis. No case of appendicitis has been fully or properly diagnosed until a blood count and a differential leucocyte count has been made, as in every case of acute appendiçitis there is a leucocytosis or a high polymorphonuclear count. Rigidity of the right rectus always indicates an operation, but without this rigidity positive indications for an imperative operation may not be present but we have in the differential leucocyte count a means of determining absolutely the degree of virulence of the infection, and can say with positive assurance whether or not an operation is indicated to save life. Recently we had a case of acute appendicitis following twin births, there was not rigidity of right rectus, but a high polymorphonuclear count indicated that she should be operated on at once, and at operation we found an appendix just ready to perforate. I believe that every doctor who has the responsibility of diagnosing operative cases should either have access to a laboratory where he can have his blood counts made or he should be qualified to make them himself. The following cases will illustrate the value of the differential leucocyte count:

Case No. 7—Wm. S., age, 7. Pain in right iliac fossa, nausea and vomiting, temperature 100. Parents insisted that they did not want operation unless unequivocally indicated to save life. Blood count showed total whites 18,280, poly., 72 per cent. On this report I advised the parents that immediate operation was not imperative, as differential leucocyte count did not so indicate. Patient made an uneventful recovery without operation.

Case No. 8—Elmer C., age, 20. Fell on street while walking from office to lunch, and was carried to my office. The symptoms indicated operation, blood count made at once showed total white, 13,250, poly., 90 per cent. Operated at once, and I found sloughing appendix.

Case No. 9—F. M. F., age, 23, traveling man taken sick at local hotel. Sudden pain in right iliac fossa, nauseated and vomiting and fever 100 2-5. Did not want to be operated on while away from home, unless imperative. Blood count showed total whites, 15,900, poly., 75 per cent. Advised him that differential leucocyte count did

not indicate that an immediate operation was necessary. He made an uneventful recovery without operation.

Case No. 10—E. A. D., age, 25, awakened at 2 a.m. with severe pain in right iliac fossa, was followed in one-half hour with nausea, vomiting and fever. Twenty-four hours later he was sent from the country by train for operation, with the request from the referring doctor that he would like to have the operation postponed until his arrival if it could be done without harm to the patient. An immediate blood count was made, just thirty hours after the first appearance of the pain, showed total white 13,200, poly., 86 per cent. I operated at once and found fecolith the size of a cherry seed imbedded firmly in the appendix one inch from its base. The appendix was bound down behind the cecum and sloughed in two one inch from the distal extremity, and fully one pint of pus serum escaped.

Colic from renal and ureteral calculi is very frequently mistaken for acute appendicitis. You have here pain and vomiting and fever, just as you have in acute appendicitis, but the fist percussion over the kidney quickly and almost invariably makes the differential diagnosis, and if it doesn't, the microscopical examination of the urine will always show blood, if there is either a renal or ureteral calculus.

Three years ago I removed a stone as large as a marble from the right kidney of a young man who had been operated upon for acute appendicitis by one of the best surgeons in Nashville, just a few months previously. The patient told me that the operation had never relieved him at all, and that he had exactly the same pain after he had been operated upon for appendicitis that he had before he was operated on. Three months ago the patient came to my office and said, "Doctor, I wish you would examine me and see what is the matter." And I imagined from his manner that he was under some excitement. After making a very careful examination I found that the fist percussion over right kidney was so intensely painful that he jumped off the examining table. He had decided pain in the right iliac fossa, but he gave no history of nausea or vomiting, and his temperature was normal. After completing the examination I told him that he probably had some trouble in his right kidney, the exact nature of which I could tell him by further examination. He then told me that he had just been ordered to prepare for an operation for appendicitis the next morning. This patient had decided pain over the appendix, but the absence of nausea, vomiting and the normal temperature should have readily pointed to some other trouble than the appendix.

Case No. 11—J. B., fireman. First saw him August 14, 1909. He was evidently in the throes of renal colic. He has had attacks of pain in right side since he was a boy. Urine perfectly normal. Repeated X-rays were negative. February 1, 1910, I removed his appendix, thinking that the appendix might be the cause of the repeated attacks of pain in right iliac fossa, although the attacks were typical of renal colic. After removal of appendix he was relieved for many months, and I did not see him again until February 19, 1914, when he was suffering from a most agonizing attack of renal colic that was located entirely over left side, with no pain over right side, where he formerly always suffered. Fist percussion over right kidney did not cause any pain, but fist percussion over left kidney gave most terrific pain. I took two pictures of left kidney and just one of right kidney for comparison. The left pictures were entirely negative for stone, but the right kidney showed an enormous stone, which is shown in accompanying cut. The left kidney was under tension from vicarious duty, as the right kidney was functioning very slightly. On March 2 the stone was removed by opening the kidney widely, and was then completely closed, except for a small rubber drain. Patient walked out of hospital just two weeks from day of operation, and the wound was completely healed.

Cholelithiasis is also frequently confused with acute appendicitis, and here, too, we have pain, nausea and vomiting and fever, if there is infection, but the distinctive diagnosing point is the perpendicular percussion of Murphy, made over the gall bladder when the patient takes a deep inspiration, in contra-distinction to the acute tenderness in the right iliac fossa on deep percussion in acute appendicitis.

The following case illustrates how deceptive

in making a diagnosis is pain in the epigastrium and the importance of the association of nausea, vomiting and fever in acute appendicitis:

Case No. 12—Wm. C., age 22, white, male. Has always lived in the country. Family history negative. Up to last September was always perfectly well; had never been sick enough to have a doctor. Present trouble began about September 1, 1913, with griping pain in epigastrium; would have the pain just any time, before eating, or after eating, and sometimes at night, and the attacks have lasted up to present time. Was never nauseated, and never vomited, and has never had fever. Worked up to May 20, 1914, just one week before this history was taken. Has pain and tenderness in right iliac fossa on palpation, but has never been conscious of any pain or tenderness in this region except when it has been palpated. Bowels have been acting about three times a day since he first had the attack of pain last September. Has never had any dysentery or diarrhoea; the bowel movements are soft but not loose. Up to two months ago he always noticed a little blood in stools, but for past two months has not seen any blood. For past three months stools have been very offensive.

Has palpable mass in right iliac fossa which is apparently a part of the cecum. Blood count as follows: Hemoglobin, 50 per cent; red blood cells, 3,216,000; white blood cells, 8,400; differential count, Poly. 61 1-2 per cent; small mononuclear, 34 per cent; large mononuclear, 4 per cent; eosinphiles, one-half per cent.

Examination of stools negative for ova and parasites, some blood.

Diagnosis, tuberculosis of cecum.

Operation June 1, and I found the anterior walls of cecum hard and infiltrated, the mesenteric glands of cecum and the lower portion of ascending colon as large as marbles, the appendix bound down behind cecum and very much enlarged. I removed the cecum, appendix, two inches of the ascending colon, and one inch of the theilium, and then made a lateral anastomosis between the ilium and ascending colon. In spite of the very low hemoglobin percentage the patient made an uneventful recovery. The laboratory confirmed the diagnosis of tuberculosis of cecum.

The chemical, pathological, microscopical, bacteriological and X-ray laboratories should be used daily in your diagnosis, but they should be adjuncts and not principals, for, after all, the examining surgeon in living contact with the patient, and with a thorough history, has a keener perception of the lesions than has anyone else. Those urgent cases that require an immediate diagnosis, such as acute appendicitis, cholecystitis, renal or ureteral colic, perforating ulcers of stomach or bowels, severe hemorrhages of brain or abdominal viscera, ectoptic pregnancies, fracture, dislocations, etc., can usually be diagnosed at one consultation, but cases of gastric or duodenal ulcer, beginning cancer of abdominal viscera, beginning inflammation of the liver or pancreas, benign abdominal neoplasms, visceral ptosis, slight intestinal obstruction, and the numerous other lesions that do not have a definite group of symptoms that could point to a definite pathology, require days and days of intent, patient and intelligent examination to make a correct diagnosis. So often are cases glibly and slovenly dubbed neurasthenic because we do not know the pathology that the symptoms represent. A diagnosis of neurasthenia should be made with a great deal of caution—it is rarely justifiable. When a patient of mine has indefinite abdominal pains, associated with general nervousness, and I cannot definitely focalize a lesion, and make a diagnosis of neurasthenia then, I always expect that patient to die of cancer.

EARLY OPERATIVE TREATMENT FOR CRANIAL LESIONS.*

By Fred Yohn Cronk, M.A., M.D.,
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It is the field most frequented that attracts the attention of the majority. Only a few venture into the newly discovered, and individuals, into the unknown quarters of our uni-

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verse. So it is with the human body. Some surgeons are venturesome and attempt to explore regions about which they know only theoretically, and gain the same success that one of us might gain in planning an arctic expedition intent upon reaching the pole. The abdomen is thickly populated and especially is this so in the lower half. There are few young graduates from our medical schools today who would hesitate to open an abdomen expecting to remove an appendix. A gall-bladder operation would be attempted by a comparatively small percentage of "occasional surgeons." The cranium is still more exclusive, yet the venturesome, inexperienced man, eager to operate, plunges through the skull and heaps only disfavor upon brain surgery.

It is the experienced man only, one of proper training and resourceful ideas, who should use the knife, and when you open into a cavity there should be no embarrassment as to proper and prompt methods of relieving any complications that may arise.

Too little stress is laid upon the brain and its appendages, and it seems a fitting time to emphasize the relative fertility that may be shown in this small field. Perhaps we should all be head and brain surgeons, fitted by our comprehensive training to undertake any phase of this work that the cranial cavity may demand. But unfortunately this is not possible and such an attitude often entails consequences which are not only disastrous to the patient but which also revert back unerringly to the ill repute of surgery, in the "folds of whose mantle many over venturesome operators envelop themselves."

The head should be explored just as promptly as the abdomen, and by so doing many of the permanent paralyses and latent epileptic attacks may be averted.

I was much surprised some months ago in hearing one of our surgeons remark that until more adequate instruments for opening and exploring the brain were secured this branch of surgery would remain in the background. Instruments are at our disposal for both hasty and intricate work, and I trust that the surgeons of the middle South will be as progressive along this line as in other branches of surgery. With experience and careful judgment the operative results will add praise and confidence to our field of labor.

It is impossible to consider this field in all its phases in my limited time, so I shall consider some common, yet very important, conditions.

An injury to the head should be looked upon as serious until proven otherwise. A moderate blow to the head direct or from a fall may cause a severe concussion and sufficient pressure to require operative interference. This is well illustrated with patient 1:

Boy, 18, fell twelve feet, landing on head on soft dirt floor; unconscious a few minutes. Brought to hospital complaining of headache only. Normal temperature, pulse 90. Kept quiet in bed with icecap to head. A.m. second day, pulse 84, third day 80; headache became only a fullness. On the fifth and sixth days the pulse became much decreased, 45 per minute and a sensory disturbance over peroneal nerve distribution of left leg. Double temporal decompression was done and dura opened. Boy made a rapid and complete recovery.

Intracranial conditions may demand similar procedures where localizing symptoms are not present for guidance, as in patient 2:

Elderly gentleman, 65, found unconscious with a small laceration over left parietal bone. (Had walked from his bedroom on to the lawn during the night.) Convulsive seizures soon appeared at irregular intervals of from 5 to 30 minutes. The seizures were general and no localizing symptoms for guidance. Double subtemporal decompression with opening of dura was done and small drains inserted. Convulsions gradually decreased in frequency, and ceased after thirty-six hours. Recovery was complete.

Age is no contra-indication. Head surgery is attended with little shock when properly manipulated and it gives the unfortunate victim another grasp on life.

There are certain patients with luetic conditions, possibly gumma of the brain, who do not respond to medicinal measures. Decom-

pression is here indicated, for following this procedure, medication is usually prompt and effective.

Intracranial hemorrhage from injury is acute—increased pressure causing venous stasis followed by increased pressure from arterial interference. Cerebral anaemias may occur early and if the vital centers suffer this fate death is soon. The skull must be opened promptly, the large window sometimes being necessary. In this procedure it is wise to expose the middle meningeal artery, as this is the vessel most commonly ruptured (unless it be from direct puncture when one would enlarge the opening or go through the fractured area at the seat of injury).

Actively bleeding vessels should be ligated, unless it entails much time to expose for ligature and the patient is in a critical condition, at which time packing may be done to control hemorrhage until the patient is in a stronger condition for the longer work.

Fractures of long bones are reduced promptly when discovered; why should there be any delay when the skull is concerned. It is imperative that deformities of the cranial bones shall be accurately corrected, leaving a smooth surface to cover the dura in order that the dreaded sequelae may not develop.

Should there not be sufficient tissue to cover and protect this area, pieces of fascia may be transferred from other parts of the body.

The best motto I know, and one for the best interest of the patient, is, when in doubt as to cranial fracture (i. e., of the vault), explore. Again, if we explore for localized conditions, do it through a large window. Dural tension is easier overcome, manipulation is easier, and the repair just as rapid. Should one find a very tense dura, do a lumbar puncture and avoid the bulging brain tissue which so much interferes with operative manipulation.

In the subdural hemorrhage, where the blood is distributed over a large area caused by the circulating spinal fluid, and general pressure symptoms present, it is often wise to wait for beginning localizing symptoms, where there is reason to believe that the hemorrhage has ceased. If general pressure symptoms increase, immediate craniotomy is imperative. In young and middle-aged people where hemorrhage is the result of violence and there is a remaining blood clot while the paralysis is gradually clearing up, we should open the skull and make sure that the entire clot is gone and that all surfaces are smooth. It is the tiny remaining organized clot that gives rise to adhesions and the development of epilepsy ten to twenty years later. The following patient illustrates the subdural hemorrhage type which subsides only by operation:

Negro boy, 12, struck over right parietal bone by baseball six days before I saw patient. Unconscious few minutes; got up and played ball a while. Headache became quite bad and patient lay in shade watching finish of game. Increasing pain in head during night. Semiconscious second day following injury; paralysis left arm third day following injury. Eyes deviated to right fourth and fifth days. Sixth day left leg became paralyzed. Examination. Convulsions. Temperature 99 to 104, pulse 80 to 120, respiration 25 to 35. Left eye blood-shot; pupils dilate with spasms equally, and Kernig signs present. Ninth day following injury used left leg, otherwise little change. Eleventh day died.

There is every reason to feel that this boy had subdural hemorrhage. It could be accurately localized and its progress followed almost as well from external symptoms as one might watch the spread of an exzema on some portion of the body. Operation was not considered early, and when I saw the case, even though free treatment was offered, the parents refused. They had made up their minds that the boy would die at any odds, and they did not want to "hurry him off." We must have the opportunity to save this class of patients.

Another patient, of whom I have only a history, is similar to the last, though not as severe.

A head injury (football) over a year ago, and in this time the trend of symptoms has been of an increased intracranial pressure—

headaches, difficulty in walking, failing vision. (Just how much more I have not learned.) We are sorry to feel that the laity, and as well many physicians, feel that brain surgery is so hazardous and wait long before even suggesting operative interference. It is like patients suffering from hyperthyroidism. The longer we wait the more the permanent damage.

The success of surgery suffers at the hands of those who fail to give it a rank among therapeutic measures. Failing vision with head discomfort invariably means intracranial pressure and nothing short of a craniotomy will save the sight of the patient so doomed.

I feel that early operation in the last two patients cited would have restored the boys to normal health.

Gentlemen, we have accurate methods of diagnosis, and ample means of speedy treatment, and, I should like to impress upon you the importance of early explorations of cranial lesions.

The following patient illustrates well how much injury may occur in certain regions—so-called silent areas—with recovery; much more, of course, could be explored with the gentle, careful hand of the brain surgeon.

Boy, 12, riding bicycle, coasting on grade, met one horse wagon and the shaft point entered the cranial cavity just above the right eye, fracturing the orbital bones as well. The boy was unconscious for an hour, and semi-conscious until operation three hours following accident. At this time some brain substance and fragment of bone were removed. Shaft was found to have penetrated brain substance to two or three inches just over the right orbit. Drainage was done, and with the exception of loss of sight of one eye, recovery was complete.

In the diagnosis of all patients where injury is not the etiological factor we must remember the usefulness of the Wassermann reaction, urinary examination, complete blood count, and an eye ground examination by an experienced oculist (one who recognizes the beginning choked disk).

Headache, projectile vomiting and failing vision suggest immediately increased intracranial pressure. We should not wait for symptoms to become so marked. Tissue is being permanently damaged. Even the persistent headache must be carefully studied with the possibility of an existing tumor. Cysts, encapsulated tumors and the like injure from pressure alone and we should be alert and apt to see that this class of patients have our careful consideration.

Gentlemen, there are patients in our insane hospitals today suffering from the effects of what was at one time a curable, surgical patient. Think of the epileptic patients whose cranial injuries (possibly years before) have been slightly considered.

I have in mind a patient who two years ago came to me for advice and treatment. At that time he was having light epileptic seizures of the Jacksonian type, and gave a history of a head injury eight years previous. Operative measures were rejected, and during the two years following he visited a number of physicians and hospitals, but operative measures were never accepted. At the end of this roaming he again came for treatment, willing to submit to anything. His mental condition was bad. Five days later he developed acute mania and is now an inmate of a hospital for the insane. If only we could do the early operation.

If there is pressure on the brain from an indefinite cause, relieve it by the subtemporal drainage if possible. Should there be a fracture, make sure the under table is not depressed. Never hesitate to take out a button and explore; the operation properly and cautiously performed is of far less moment than the uncertainty of a depressed fragment. When localization is indefinite and patient is in good condition, make a large window through the skull and explore.

Consider the brain from the same standpoint that you would an abdomen, and treat it gently but firmly.

INFLAMMATORY PATHOLOGY OF THE TONSIL.

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Richmond, Va.

For the proper understanding of the pathology of any organ the embryology, histology and physiology is essential, so the writer will briefly review our knowledge of these relative to the tonsil.

During the period from the sixteenth to the eighteenth week of intra-uterine life the tonsil makes its appearance, and gradually reaches its maturity about the seventh year. The tonsil is formed in the fetus by an invagination of the hypoblast which forms the capsule and the trabecular pouches. The epiblast extends down into these trabecular pouches and lines the crypts which are formed by the prolongations downward. At birth it measures about 1 cm. in its long axis and 0.5 cm. across, and is covered by the plica tonsillaris in the tonsillar fossa. This membrane begins to disappear two weeks after birth, and it is at this time that the tonsil is first exposed to infection.

The tonsils are two masses of lymphoid tissue, situated in each tonsillar fossa and bulging out into the oropharynx; olive-shaped; long axis vertical; maximum length 2.5 cm., breadth 2 cm. They are covered by stratified epithelium. Their pharyngeal surface has from six to fifteen small openings—mouths of the crypts. The crypts are lined by similar epithelium.

The tonsils are composed almost entirely of lymphoid tissue, which, in areas, are collected into lymph nodes, in which the lymph cells are more closely arranged. This lymphoid tissue is enclosed externally and inferiorly by a dense capsule of connective tissue and the glands are divided into pockets by the trabeculae of connective tissue. The configuration of exposed surface is largely dependent upon the epithelial covering.

These pockets are separate compartments having separate blood and lymph vessels, nerves and mucous ducts, in the surrounding connective tissue trabeculae, and the writer believes that the secondary involvement of lymph glands in tuberculosis depends upon the crypt affected. Of course, several crypts can be involved by extension in contiguity and also in multiple infection.

The physiology of this gland is not understood and, at present, only theories are advanced. However, we do know that whatever the function may be, it is exercised only in early life, for the tonsil atrophies about the sixth or eighth year. If the tonsil is present after the fourteenth year it is a pathological hypertrophy.

Some authors claim that the tonsil is a part of the digestive system, but this contention has been disproven by the absence of any enzyms.

The writer holds to the theory that the true function of the tonsil is as an immunizing agent. Bacteria of many varieties are continually being cultured in the crypts of the tonsil, but owing to free drainage and protective agencies of the several layers of epithelial cells, the crypts, except under extraordinary circumstances, such as poor drainage or virulent strain, are able to handle the germs.

The Peyer's patches of the lower ileum are for the same immunizing purpose against the bacteria of the bowel. The function of the appendix is not unlikely the same as the tonsil, for it is filled with lymphoid tissue and atrophies in early adult life.

The pathological findings in this paper are based on the macroscopical and microscopical study of 108 cases, 213 tonsils, operated by Drs. Wright & Bowen and the late Dr. R. L. Edwards from October, 1911, to November, 1913. In three cases only single tonsils were studied. All of these cases except ten were done under ether anesthesia with no fatalities, and only one case of secondary hemorrhage which was never alarming. The operation performed was a complete tonsillectomy by instrumental dissection and snare method, the capsule

being removed in all except fourteen. The tonsils were in one piece in nearly every case and the capsule was found in place in 199. Very careful examination was made for muscle attachment to the capsule, which was found present in 53 cases. Microscopically it was found present in nearly every case to a greater or less degree, but in no case in sufficient amount to seriously impair the function of the oropharynx.

The patients were from two to thirty-five years of age, excepting one patient, age 54—43 males and 65 females. Of these tonsils, 144 were classified as large and 69 small; 25 were submerged, 74 partially so and 114 free; 144 had deep crypts, and 17 were so distorted as to appear grossly not to have any crypts. This point was not searched for in the early series. Twenty-five were seen to contain concretions on section. No effort being made to express the concretions, there were fewer found than might have been present. Microscopically, concretions were seen in 154, abscesses in 30; connective tissue increased in 164 to a more or less extent—some almost entirely sclerosed. One hundred and eighteen showed fibrin; especially was this true where connective tissue was on the increase. In twenty-eight there were foreign inclusions—the most of these consisted of solid hyaline desquamated epithelial plugs. These may be accounted for by islands of epithelium being cut off in an arm of a crypt by previous inflammatory process and thereafter the epithelium being retained. Three contained islands of cartilage. One hundred and ninety-eight showed evidence of chronic inflammation. Pericryptal inflammation in 165. This was usually found at the bottom of the crypts, which contained concretions, and consisted of round cell infiltration of the surrounding epithelial layers and lymphoid tissue. The epithelium in many cases had been ulcerated or lost, and in thirty tonsils actual abscesses had formed. These concretions consisted of decomposed food, desquamated epithelium and leucocytes.

The germinal centers were large or normal in 134, small in 38 and not found in 19. Ten tonsils were tubercular and in one case the disease was bilateral. Only one case had no cervical glandular enlargement; the other eight cases had cervical glands from size of almond to walnut. Unless several sections of suspected tonsil are studied, the tubercular lesion is apt to escape detection. From one to six areas of these tonsils were examined before the involvement was discovered. Many of these cases had typical tubercular lesions extending down to the capsule and only a part of the respective tonsil involved, hence a tonsillotomy would not be sufficient to remove the disease. These patients have all been very carefully examined for pulmonary involvement, but no appreciable change found, and their subsequent history has sustained the above negative findings.

It is surprising to see the following statement made by E. S. Judd, in his paper reporting operative treatment of 649 cases of tuberculous cervical adenitis: "We are seldom able to demonstrate positively the exact avenue of the infection. Occasionally we may find the bacilli in a decayed tooth, tonsil, or lupus area, but more often the point of invasion cannot be found. It has been shown, experimentally, that cultures of tubercle bacilli swabbed over the surface of the tonsil may leave no trace of their passing through that organ, but will invade the glands draining the tonsil. In our cases we were seldom able to trace back to the source of entrance. Examination of several hundred tonsils showed tubercles in much less than one per cent. In 1,000 cases 2.3 per cent had positive tuberculous lesions."

A further study and report will be made on the tonsil as the avenue of infection in tuberculous cervical adenitis.

I wish to thank Dr. H. J. Hayes for his great assistance and good work in the preparation of material for this paper.

CONCLUSIONS.

1. All tonsils that are hypertrophied after fourteenth year are pathological and should be

removed, especially if patient is subject to recurrent attacks of tonsillitis.

2. Tuberculosis was present in 5 per cent of tonsils removed in this series.

3. Tuberculous cervical adenitis of same side was present in every case of tuberculosis of tonsil of this series of ten cases, excepting one.

4. Tonsillectomy should be done as a preliminary operation to excision of tuberculous cervical glands.

5. Tonsillectomy is the only operation that will eradicate the diseased tonsil in entirety.

Monroe Terrace.

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ENUCLEATION OF THE EYEBALL WITH IMPLANTATION OF A GOLD BALL.

By M. H. Biggs, M.D., and Henry Norris, M.D.,
Rutherfordton, N. C.

In presenting the Frost-Lang operation from the standpoint of the general surgeon we do not want to give the impression that we are trying to invade the field of ophthalmology. On the contrary, any work of this character that we do is under compulsion, and we do not attempt any of the more delicate operations which require the skill of the experienced ophthalmic surgeon. There are a few patients requiring the removal of an eye who, for apparently valid reasons, cannot or will not be referred to the specialist, and it falls to the lot of many surgeons to do this operation in a few exceptional instances. It is desirable, therefore, that we familiarize ourselves with the best methods and perfect ourselves in the technique of at least one such operation.

In our earlier operations in the Rutherford Hospital we were content to do a simple enucleation, but in conversation with one of the leading ophthalmologists of the country we were urged to adopt the Frost-Lang modification and, in the past few months, have made two such operations with most gratifying results, in spite of the fact that both cases seemed more or less unfavorable for the implantation of a gold ball.

Fortunately the technique of the best implantation method need not differ in any respect from the technique of the best method of enucleation except the introduction of a metal ball in the capsule of Tenon before the incision is closed, and the separate closure of the capsule of Tenon and the conjunctiva by two layers of sutures. Simple enucleation, as at first done and for many years thereafter, consisted in removal of the eye and no attempt at suture. This operation in the hands of our best ophthalmic surgeons gave very satisfactory results, but that it admitted of improvement is attested by the many modifications by surgeons in bringing together cut ends of muscles to prevent retraction and to overcome in this way the enophthalmos presented after simple enucleation, as well as to give a greater range of motion to the stump. In different ways the cut muscles were partially approximated or brought in complete apposition with one another and the procedure finally adopted with greatest success was by suture of the muscles to the conjunctiva in, as nearly as possible, their normal position, either by separate sutures or by including them in the sutures used to close the wound in the conjunctiva.

Frost's description of his operation as first done is as follows: "The conjunctiva having been divided in the usual way, each rectus in succession was seized with forceps, divided and secured by a ligature passed through it and the conjunctiva; the enucleation was then completed, the four recti being held apart by means of the sutures. Mule's sphere was introduced into the capsule of Tenon without any difficulty; opposite recti, with the conjunc-

tiva, were then united across it by passing one of the ligatures through the opposite tendon, the other ligature being then removed." In his first case the ball came out on the fourth day and he modified his operation, suturing the muscles first with catgut and then the conjunctiva.

Lang and many others have done this operation extensively and have modified the technique, both in method of closure and material implanted. The most satisfactory materials for implantation are gold or platinum spheres about 14 mm. in diameter.

The technique adopted by us is as follows: The conjunctiva is divided close to the cornea, each rectus tendon is brought forward on a hook and through it is passed a silk suture which is clamped in a hemostat but not tied. Enucleation is completed and the capsule of Tenon packed with gauze to control hemorrhage. Each rectus muscle is now separately sutured to the edge of the conjunctiva by the suture originally introduced through the muscle, and the sutures left long and used as tractors for introduction of the gold ball and for suturing the capsule. The capsule of Tenon is then brought together by interrupted catgut sutures so that the ball is entirely covered in, and the silk tractors cut short. The conjunctiva is united by interrupted silk sutures and a binocular bandage applied.

Suture of the muscles to one another is not advised, as it brings the muscles into an abnormal position and produces tension which tends to cause extrusion or dislocation of the implanted sphere. Sweet states that the only absolute contraindications to this operation are "eyes with malignant growths and those purulently inflamed," and that it is not a satisfactory operation after the removal of an atrophic stump on account of pressure upon orbital tissues. He gives as possible complications, swelling and ecchymosis of the lids; displacement of the ball after healing and sympathetic trouble. Escape and dislocation of the ball probably result from tension due to improper suturing, and the consensus of opinion seems to affirm the view of Sweet that "should sympathetic ophthalmia appear it would have occurred no matter what operative procedure had been followed."

Case 1—J. S., aged 15 years. While shooting rabbits the barrel of his gun burst and a fragment of metal entered the left cheek, struck the lower margin of the orbit, penetrated the lower lid and entered the eyeball. When admitted to the Rutherford Hospital some hours after the accident the metal was still embedded in and projecting from the wound. Vision was destroyed. Considerable shrinkage of the eyeball and inflammation followed extraction of the fragment of steel. Under appropriate treatment the inflammation subsided. Enucleation was advised and refused. Three months later the patient again applied for treatment for inflammatory trouble and limitation of motion due to adhesions, and again refused enucleation. After inflammation had subsided the cicatrical adhesions between the lid and ball were divided and oil instilled in an attempt to prevent renewed adhesions. The operation resulted in some increase in motion. About two months later he came to have the eye removed. The eye was slightly inflamed and motion limited, but there were no symptoms of sympathetic trouble. A 13 m.m. gold ball was implanted with entire success, and now, several months after operation, the ball is retained and in good position. In this case partial fixation and shrinkage of the eyeball adversely affected the end result.

Case 2—W. G., aged 11 years. Admitted to the Rutherford Hospital twelve days after having penetrated the right eyeball with a knife blade. Vision was at once entirely destroyed. The eye was extensively inflamed and the patient had severe pain, elevation of temperature and pulse, but no sympathetic symptoms. Under treatment the local conditions improved and five days after admission the eye was enucleated and a gold ball implanted. During enucleation the eyeball ruptured. Because of the degree of inflammation still present at the time of operation both argyrol and a solution of one to five thousand bichloride of mercury were used freely while operating. The dressing was not removed until the third day and the patient left the hospital on the seventh day after operation. He has now been wearing an artificial eye for several months with comfort and a fair range of motion.

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EDITORIAL DEPARTMENT

SURGEON GENERAL GORGAS AND THE NATION'S GREATEST NEED.

His work as Chief Sanitarian of the Canal Zone having been completed, Surgeon General Gorgas has returned to Washington to assume his duties as Chief of the Medical Corps of the United States Army, to which he was recently appointed by President Wilson. No conquering hero ever returned to his native country with a record of greater achievement and none ever deserved greater encomium for his services to mankind than Surgeon General Gorgas. The fame and vain conquests of Alexander the Great, Caesar and Napoleon, and other great conquerors in history, were accomplished at the cost of carrying death and desolation over continents, making millions mourn; while the victories of Surgeon General Gorgas, and those who followed him in the campaign against tropical diseases in the "death holes" of Panama, saved thousands of human lives, made a health paradise of tropical jungles, and, as President Taft said, "rendered possible the completion of the Panama Canal, the greatest industrial undertaking in the history of the world."

The greatest triumphs of medicine in the knowledge of men have been the elimination of yellow fever and the practical eradication of malaria from Havana and the Canal Zone, thus proving that those life-destroying and energy-sapping diseases, the most dreaded enemies to man in tropical and subtropical countries, can and will be conquered everywhere. These triumphs mean that millions will live in health, happiness and unbounded prosperity in regions that are now sparsely inhabited and undeveloped because of the presence of these tropical diseases. Nothing in history is more inspiring than Gorgas' conquest over disease, and the good that he has done will rest like a benediction upon the inhabitants of temperate and tropical countries throughout the world,

when wars and warriors and "the fearful ruin they have wrought" have been forgotten. What a fine theme for the thunder roll of a Homer, this splendid genius of the American Army, with his band of sanitarians, routing the hosts of Death in their tropical strongholds. It towers above the heroism of the lofty plumed Hector or the valor of faithful Achilles.

That Surgeon General Gorgas' work is appreciated in foreign countries—as it is by his own people—is shown by the tribute paid him by the Public Orator of Oxford University, England, who, last March, in presenting him for the honorary degree of Doctor of Science, said:

"Those are most to be honored by us who have increased knowledge and thereby promoted the welfare of the world. Such are many students of medicine; it is a fine thing to have scientific knowledge which can cure disease; but theirs is still a finer, if more dangerous, task who can extirpate the causes from which disease springs. It is such men who destroy the seeds of death which are bred in swamps, risking their health and even their lives to serve their fellows. These heroes are a modern realization of the legend of Heracles, the cleanser of foul places and the enemy of evil beasts.

"The eminent American whom you see today has, like many of his countrymen, fought in the forefront of the battle. His achievements are too numerous for me to relate in detail. Suffice it to say that it is he who cleaned Havana; it is he who put fever and pestilence to flight in the Isthmus of Panama, and made possible the long-thwarted construction of the great inter-oceanic waterway; it is he who has recently improved the sanitary condition of the South African mines. He purified the foul air; he waged war on the myriad swarms of death disseminating mosquitoes. The result has been an amelioration of the conditions of human life in plague-haunted districts, where once 'in silent fear the helpless healer stood,' and it is now possible to live in comfort and to work with advantage. There can be no better example of those 'Whose skill hath served the human lot to raise, and won a name that endless ages praise." (1)

The Acting Vice Chancellor of Oxford in admitting Surgeon General Gorgas to the degree of Doctor of Science approached the epic in expression when he said:

"Pre-eminently distinguished, sagacious, health-bringing, the modern Machaon of the American Army, whom indeed I should wish to salute not only in Latin prose, but also in Greek verse, thus: "'Hail, Router of the Plague of Flies! Hail, Isthmian conqueror true!
Gorgas, to that wise goddess dear, the Gorgon Death who slew.'" (2)

Perhaps the highest compliment ever paid a sanitarian by a foreign country was when the English called upon Colonel Gorgas to investigate sanitary conditions in the Transvaal and in Rhodesia. His recommendations to the Transvaal Chamber of Mines for improving the sanitary conditions of the employes of the mines on the Rand, as published in the Journal of the American Medical Association, June 13, 1914, if carried out, as they were on the Canal Zone, will reduce the number of deaths from pneumonia alone by thousands each year, and his visit will thus prove a blessing to the inhabitants of South Africa.

The report of Surgeon General Gorgas' investigations concerning the causes of malaria and black water fever in Rhodesia, with his recommendations regarding methods to employ in stamping out those diseases in that locality, which appears as the leading article in this number of the Journal, is probably the ablest, the most authoritative, and therefore the most important, discussion on the prevention of malaria ever published. Malarial prevention is the same everywhere, and the measures he advises for Rhodesia will apply to any locality in which malaria is prevalent. Why should they not be put into practical operation in the malarial districts of the United States, as well as on the Canal Zone and in Rhodesia? Why should we not practice among our own people the methods for preventing all other diseases that have given such brilliant results in our territorial posses-

(1) Journal of the American Medical Association, June 13, 1914, page 1864.

(2) Journal of the American Medical Association, June 13, 1914, page 1865.

sions and in other countries? Surely there is need for improvement in the health conditions of the United States.

In the year 1912, 838,251 deaths from all causes were reported in the registration area, which comprises only 63.2 of the total population of the United States. There were then approximately 1,400,000 persons who died in our country in the year 1912. It is estimated that at least one-third of them, or more than 450,000, died needlessly of diseases that could and should have been prevented. Pneumonia alone caused the death of 79,917 in the registration area and at the same ratio for the entire United States approximately 125,000 died of this disease, which the average person does not regard as preventable, and which our government has done nothing to prevent, yet on the Canal Zone among the negro employes the death rate from pneumonia was reduced from 18.74 per thousand in 1906 to 1.30 in 1912 (3). Of course, it is not possible to control the housing and other environment of the inhabitants of the United States as was done with the laborers working on the Panama Canal, and we could not hope to reduce the death rate from pneumonia and other diseases as low as reported by Surgeon General Gorgas, but hundreds of thousands of lives of good American citizens could be saved if we even approximated the sanitary measures employed in the Canal Zone.

It is estimated that several million people in the United States have malaria every year, and the annual economic loss is considered to be not less than $100,000,000 from that disease. Yet if the same practical methods of malarial prevention, which were successfully carried out in Havana and the Canal Zone, were put into effect and continued for five years in our own country, malaria would become a rare disease in the United States.

The toll of tuberculosis in our country is now approximately 140,000 lives annually, though in the past twenty years the campaign of education has reduced the tuberculosis death rate from 200 to 150 per hundred thousand of population. Two hundred thousand die annually from disease of the heart and kidneys, when according to the Human Factor, published by the Equitable Life Insurance Company, 40 per cent of those deaths could have been prevented. The death rates from diseases of the heart and kidneys are increasing at an alarming rate, and yet practically nothing has been done for their prevention. Cancer is increasing, and so are many other diseases.

The figures and facts presented above are appalling. They tell the tale of ignorance upon the part of our people and neglect upon the part of our government. They also prove that the Nation's greatest need is an adequate department of health, with an appropriation sufficient to provide experts, epidemiologists and trained sanitarians to aid the health authorities in the various states and cities in their campaigns against disease.

The present United States Public Health Service, under the wise leadership of Surgeon Generals Wyman and Blue, has made a wonderful record in quarantine service, and when called upon to take charge of epidemics in various cities it has shown remarkable efficiency. Indeed the annals of medicine record no more brilliant achievements than the eradication of plague from San Francisco by Blue, and yellow fever from New Orleans by White. The work of Stiles on hookworm, Anderson and Rosenau on anaphylaxis, Lumsden on typhoid fever, Lavender on pellagra, von Ezdorf and Carter on malaria, Rucker, Creel and Grubbs on plague, and Young, Goldberger, Trask and other surgeons in various phases of public health work has reflected great credit upon the United States Public Health Service; but ten men are needed in public health work where there is now one employed, and the Bureau of Public Health should be enlarged into a department with a member of the President's Cabinet at its head.

The Army and Navy Departments protect life and property in time of war. Is it not just as important to protect life and property

(3) Gorgas: Jour. A. M. A., June 13, 1914, p. 1856.

during peace? The Department of Health should be on the same basis as the Departments of the Army and Navy. Indeed the medical corps of the Army and Navy should be correlated with the Department of Health during times of peace. It might be well to go further and train selected men in each regiment as sanitary inspectors to be used by the various cities and States, upon request, as in times of an epidemic. New Orleans is now spending $50,000 per month in salaries for plague prevention, when the work could be better done at probably one-fifth the cost if the United States Marines were trained in sanitary work, and could be called upon for that service. Is not the protection of the health and lives of a people of equal importance as the safe-guarding of labor and commerce, and should there not be a Department of Health with a Secretary of Health?

The American Medical Association, the Southern Medical Association, and practically every State, county and city medical society in the entire United States have endorsed legislation for the creation of a Department of Public Health with a cabinet officer at its head. Efforts were made to enact such legislation during the administration of President Roosevelt and Taft and though success seemed assured, the bills were defeated. The next session of congress seems the most propitious time to present this most important measure to our national legislators. Never in the history of our country has so much advanced legislation for the good of the entire people been made into laws as in the past year; and the democratic party, under the leadership of the most accomplished statesman that ever occupied the presidential chair, will not fail in its opportunity to meet the Nation's greatest need and create a Department of Health. During the interim of the sessions of Congress physicians should make the opportunity to inform their friends among the Congressmen and Senators of the needs for such legislation. If the medical profession will stand united on this question there can be no doubt but that before another year Congress will have enacted the greatest possible piece of constructive legislation for the good of the whole people by providing for an adequate Department of Health.

Great epochs develop great men to lead the great movements for the betterment of mankind. The present epoch in the world's achievements will go down in history as the dawn of the science of sanitation and in this movement our country leads all other nations, and she has produced the greatest leader. The United States Government has sent through Surgeon General Gorgas the gospel of health and sanitation into Cuba, the Canal Zone and South Africa, and will she not call upon the genius she has developed to lead the fight against the hosts of Death that have invaded our own country and that every year destroy more lives than have been lost in all the wars in our history.

Our Government owes it to Gorgas to create a position of greater honor than has ever been filled by a sanitarian, or by any other member of the medical corps of the United States Army. After Dewey's return from his victories in Manila Bay a grateful nation gave him such a greeting as has never been accorded any other man in our history, and Congress voted to make him a full admiral, the highest position in the Navy. Are not the achievements of Gorgas of greater service to our country and more far reaching in their effect in increasing national prosperity and happiness than any naval victory ever won? If so, Congress should show the gratitude of the people whom it represents by first making Gorgas a major-general in the United States Army that he may retire with that rank. Then it should perform the greatest possible service for the Nation by creating a Department of Health, and the sincere desire to appoint the man who can give the best service in the position may be depended upon to lead President Wilson, who has proved his wisdom in every act of his administration, to select Gorgas as Secretary of Health in order that the Nation's

greatest need, as well as its greatest opportunity, may be fulfilled.

"ON TO RICHMOND."

As Richmond was the objective point to be gained by the vast Union armies in the sixties, so it will be in November by the army of progressive physicians of sixteen Southern States, who make up the Southern Medical Association, and who will go to that historic city to attend the eighth annual session of the Southern Medical Association.

History records no greater deeds of heroism than those performed in the defense of the capitol city of the Confederacy by the gallant men under Robert E. Lee, and the annals of medicine tell of no greater advancement by the profession in any country or in any section of our own country than has been accomplished by the physicians of the South in the past few years. "Peace hath her victories," and the triumph over malaria, uncinariasis, pellagra, and other tropical diseases that are being won every day by the organized medical profession in every Southern State will finally rid our beloved Southland of her greatest enemies; and the brightest pages in the history that records the wonderful agricultural, industrial and commercial development of the South will be those that tell of the part played by organized medicine in its warfare against the diseases that have interfered with the prosperity of the inhabitants of the rural districts of the South. The Southern Medical Association will receive its share of the glory for bringing together the physicians of the South for the altrustic purpose of aiding in the prevention of disease as well as for fostering interest in scientific medicine and surgery among Southern physicians.

The invading hosts of the Southern Medical Association will be met by the receiving hosts of Richmond in a very different way from that accorded to Virginia's visitors in the sixties. The cordial welcome and the genuine hospitality that the Southern doctors will receive in November cannot be excelled, for old Virginia is the home of courtesy and refinement, and the medical men in that State are among the princes of the earth.

The "Battle of Jacksonville," though far removed from the Old Dominion capitol, was really the engagement that made the conquest of Richmond an easy task for the Southern Medical Association. It was in Jacksonville that a small detachment of Richmond physicians first saw the Southern Medical Association. They liked it and decided to carry it home with them, but through the maneuvers of one Kentucky "colonel," who by a "war" map proved to the satisfaction of a majority of the members of the Council that Lexington was the geographical and railway center of the South, Richmond's capture of the Southern Medical Association was delayed for a year. That this was wise strategy was proved by the wonderful meeting at Lexington last year when the progressive physicians of that delightful city and of the great State of Kentucky were captured by the Southern Medical Association and the visiting doctors from other States became so enamored of the charming hospitality of Kentucky that they are dreaming of the time when they can again invade the bluegrass region.

The invading armies of 1914 will not have to endure the hardships of the men who wore the blue in the "late unpleasantness," the bitterness of which, by the way, has been forgotten by the physicians of the South, who are now and will always be entirely loyal to everything in our united country including our great national medical organizations. They will go on the most luxurious trains or in automobiles. Already a number of special trains of the very finest equipment are being arranged for by the physicians of the various sections of the South. The physicians from southern Texas will join those from New Orleans and the southern counties of Louisiana, Mississippi, Alabama, and West Florida on special sleepers over the L. & N. to join others at Atlanta where a special train will be made up either

over the Southern or the Seaboard Air Line or it may be that specials will be run over both roads. Those from northern Texas, Arkansas, and Oklahoma, Louisiana, and Mississippi will join the west Tennessee physicians on a train that will start from Memphis. A special over the Chesapeake and Ohio from Louisville or Lexington will carry the delegations from Kentucky and West Virginia. The physicians from Alabama, Georgia, South Carolina and North Carolina and Florida will have the privilege of making up sleepers for the specials above mentioned. The delegation from Jacksonville and other Florida points, Savannah, Charleston and Wilmington will probably arrange for a special over the Seaboard Air Line or the Atlantic Coast Line. Since Baltimore and Washington are so near Richmond with a dozen trains a day each way no specials will be run, but large delegations from Maryland and the District of Columbia will join in the attack on Richmond in November. The Virginia doctors outside of Richmond will go in battalions to their capitol city, either on trains or in automobiles. The roads in Virginia are wonderful, and many physicians from nearby places will make up parties and go overland in automobiles. *All roads lead to Richmond in November.*

From present indications more than one thousand physicians are now planning to go to Richmond, and never before have so many signified an intention to take their wives and friends with them to a medical meeting. The attractions of Richmond, the most historic city in the South, added to the finest program ever arranged for Southern physicians, are allurements that cannot be withstood by the progressive medical men of the South and from now until November 10 the "war" slogan will be "On to Richmond."

TYPHOID IMMUNIZATION BY THE SOUTH CAROLINA BOARD OF HEALTH.

The JOURNAL is in receipt of a letter from Dr. James A. Hayne, Secretary of the State Board of Health of South Carolina, calling attention to the work that State is undertaking in fighting typhoid fever. The JOURNAL has long viewed with admiration the energetic and practical manner in which the health work of that commonwealth has been conducted, but did not know that South Carolina was the first State to take up typhoid immunization and distribute free to all her citizens the typhoid vaccine. It recognizes the fact that the State Board of Health has set an example worthy to be followed and that its executive officers are, to use a colloquialism, "strictly on the job." Dr. Hayne is one of the best health officers in the country, and is an active and enthusiastic member of the Southern Medical Association. Below we give his letter in full:

Editor Southern Medical Journal:

In the editorial department of the Southern Medical Journal, July, 1914, there is a heading "Genuine Typhoid Immunization." I write this letter to keep the records straight, as both the Journal of the American Medical Association and the Southern Medical Journal have seen fit to publish reports from other States and seem disposed in writing of typhoid immunization to ignore the fact that South Carolina was the first State to take up this matter of typhoid immunization and distribute free to all of her citizens typhoid bacterin. This was commenced July 19, 1911, and has been kept up ever since. During that time we have manufactured and sent out from our laboratory the following number of ampules:

During 1911	3,550
During 1912	11,400
During 1913	25,258
During 1914	11,846
	52,054

We have issued 52,054 ampules, showing that 17,351 people have received immunization. This typhoid bacterin is sent to physicians upon request for same, and they are required to send to this office the name of the person immunized and the reaction for each injection, whether mild, moderate or severe.

We believe that not only in priority of Statewide distribution, but also the fact that the typhoid bacterin is distributed free and that more people have taken advantage of our offer. South Carolina stands first and should have credit for same.

This bacterin is manufactured by Dr. F. A. Coward, Director of the Laboratory, and his assistant, Mr. Jas. R. Cain. This bacterin is put into ampules, sealed and sent out from our laboratory without one cent of cost to those receiving it. It costs the State about 10 cents for three doses, including postage. This price shows the large margin of profit to manufacturers where it is sold at 50c for three doses, or with the syringe for $1.50.

Hoping that you may see fit to publish this statement, I am, Yours sincerely,

James A. Hayne, M.D.,
Secretary State Board of Health.

THE ABDERHALDEN TEST.

Some recent investigations as to the reliability of the sero-diagnosis of pregnancy have been conducted by Dr. Chester M. Echols, of the University of Wisconsin, who read a paper on the subject at the late meeting of the American Medical Association. Dr. Henry Schwartz, of Washington University, also contributed a similar article. The necessary refinements of technic described by Dr. Echols offer a partial explanation of the fact that many American workers of ability who at first hailed the test with enthusiasm "have abandoned the test after a brief and unsatisfactory experience with it." Even with the most painstaking and accurate work, from 10 to 15 per cent of the non-pregnant cases examined give the positive pregnancy reaction. On the other hand, its negative value seems to be established, for in no reported instance has a case proved to be pregnant when the test gave no positive result. As Dr. Echols expresses it: "If a woman does not give a positive reaction to the test, it is safe to conclude that she is not pregnant. On the other hand, if she gives a positive reaction to the test, we can only say that she is probably pregnant."

In spite of this uncertainty it would seem that when other classical indications of pregnancy are present, a positive reaction would go far to confirm them. Dr. Henry Schwartz, of Washington University, is an ardent believer in the reliability of the test, though he acknowledges that "even in expert hands" certain causes may lead to an erroneous diagnosis. The discussion showed that much interest in the matter was taken by leading men all over the country. The trend of opinion seemed to be towards the need for further research along the line of specific dialyzation of different tissues, normal and abnormal; a further effort to learn what pathological conditions would give a positive test with the pregnancy serum. It is almost certain that Abderhalden's research has opened a door to clinical diagnosis not heretofore recognized, and whose value it is difficult to estimate. At present the test is useful in diagnosis only to experts.

THE HIGH FREQUENCY CURRENT IN ELECTRO-THERAPEUTICS.

In the Medical Record of May 30, Dr. A. D. Rockwell, the venerable pioneer and authority in all that pertains to the application of the various forms of electricity to the treatment of diseases, gives a resume of his conclusions based upon forty-five years of electro-therapeutic work.

After briefly stating the differing effects of galvanic, faradic and static currents, and comparing their values, he says: "But to my mind, we have in the development of the high frequency current, reached the high water mark thus far, in the application of electricity in disease." He calls attention to its causing a development of internal heat instead of an external burn like a galvanic contact, so that it will cook an egg or a potato from within outward without affecting the shell or skin. "It adds a definite amount of calories of heat to the body, in a way altogether new and unthought of until recently." He considers it "invaluable" for the lowering of high blood pressure and the relief of its many distressing symptoms. Finally he intimates that its value largely depends upon the skill with which it is administered, and regrets that the colleges are so lax in the teaching of electro-therapeutics.

Probably few men are more competent to speak on this subject than Dr. Rockwell, and his words are worthy of serious attention.

A PROPOSED DIAGNOSTIC AID.

Most physicians have learned by experience the difficulty of recognizing weak or diseased heart muscles in early cases. It is especially desirable to do so when making the physical examinations that precede the induction of general anesthesia. In "Roussky Vratch," Jan. 18, 1914, Dr. W. H. Schtauge offers a simple test for weak hearts that will be invaluable should further experience confirm his observations. He causes the patient to be comfortably seated in a chair and then to inhale a moderately deep inspiration with the mouth closed and to hold his breath as long as he can. From thirty to forty seconds is the normal period of suspension without distress, the length, according to Dr. Schtauge, depending upon the vigor of the heart muscle and not upon lung capacity. The patient who cannot hold his breath over twenty seconds is not a safe subject for chloroform or ether anesthesia.

Probably the test would be invalidated were the patient to draw several deep breaths before suspending them, as every swimmer knows that procedure will very much lengthen the time he can stay under water. If there should prove to be any truth in the test, there are many places beside the operating table and ether mask where it can be made useful.

WHY SOME DOCTORS PRESCRIBE PROPRIETARIES.

Quite recently an article was read before a county medical society in a Southern State condemning severely the prescribing of proprietary medicines by physicians.

The article was read by a representative of an organization of pharmacists and ably presented their view of the situation. It declared that the practice encouraged a public demand for the articles prescribed and led to self-prescribing by the laity; that the only difference between proprietary medicines and patent medicines is that the former are advertised through gullible doctors and the latter through the newspapers; that both varieties were "of unknown composition, purity and strength," and that the strongest advertising point of either was the published statement: "The doctor prescribes it;" that it was dishonest for a doctor to charge for a prescription for a proprietary medicine concerning which he knew only what the "literature" which wrapped the container presented; and that pharmacists were opposed to the promiscuous sale of patent medicines and "stand ready to give up the business when conditions permit."

There were other charges in this indictment, but the JOURNAL prefers to consider them one at a time. First, however, let it be understood that it is not every proprietary preparation that is "of unknown composition, purity and strength." On the contrary, the A. M. A. Council on Chemistry and Pharmacy, after most minute and painstaking investigations has presented to the medical profession many titles of proprietary medicines and preparations whose "composition, purity and strength" they, the Council, have determined and endorsed, and though they recommend no medicine of any kind or under any circumstances, yet their certificate of honest specification places all these medicines within the reach of the ethical physician, ready for instant use and prescription, *if he knows how to prescribe.*

Aye! There's the rub! If they know how to prescribe! And why should they not know how? Simply because often they have not been taught at medical schools even a rudimentary knowledge of materia medica and therapeutics.

It is almost incredible, yet it is true that at some of the very prominent and most eminent schools of medicine in the United States but little attempt is made to teach materia medica or therapeutics.

True, in pharmacology they show the action of a few powerful agents, chloroform, alcohol, strychnine, etc., on reptiles and animals, in ways, amounts and methods inapplicable to the practice of medicine, and in their clinical year stumble through the hospitals, superb on diag-

nosis and records but inefficient in medication, and thanking fortune when a case can go to the surgical ward, for there they are at home. If they cannot cure a diseased organ, they can "ectomy" it, and that ends the case one way or the other. In a word, such schools turn out fine diagnosticians and splendid surgeons, but mighty poor prescribers. Many such graduates frankly acknowledge themselves "therapeutic nihilists;" naturally, for it is natural to disbelieve what one does not understand. But in the course of everyday affairs a doctor is wanted ten times where a surgeon is needed once, and when the young physician is suddenly confronted by a case beyond "dieting, rest and massage," a case that expects and demands medication, the easiest procedure for the doctor is to remember the teachings of a proprietary drummer, or of the wrapper around a sample bottle, and if it seems to touch the symptoms, prescribe that. And it is safer for the patient than it would be for the untaught doctor to try to formulate a prescription containing powerful drugs whose properties he had never been told except as they related to guinea pigs and frogs; or if a pretence was made at clinical demonstration it was generally by skeptical experimentors and impractically conducted. Beyond the shadow of a doubt the lack of thorough teaching in materia medica and therapeutics by our leading medical schools is playing directly into the hands of the proprietary medicine manufacturers. If there is another trade, calling, or profession on earth whose schools scorn to teach anything about the tools to be used in its practice it is a curiosity. But the graduates of some of our medical schools are turned loose on a suffering public ignorant of the tools of their trade excepting only those more or less surgical in character. Beyond this they are weaponless and helpless. No wonder they welcome the ready-made weapon handed them, all sharpened, polished and gilded outside, no matter how base the metal, with full instructions for use. No wonder! There is still another reason, "but that's another story."

UNDER GOVERNMENTAL CARE.

It is gratifying to every broad-minded physician to realize the completeness with which our general government guards every point, at home and abroad, through which germs of disease hostile to human, brute or vegetable life might find a way to attack us. In every known port some one is constantly on duty to notify headquarters of the sailing of a possibly infected vessel, whereupon she will be received over here with most solicitous attention to the health and comfort of her crew and passengers. If bubonic plague exists at her port of sailing the human occupants will be cared for in luxurious or at least comfortable segregation to insure their escape from infection, or else its development. Meanwhile rats and fleas on the ship are destroyed by the suffocating fumes of burning sulphur.

No foreign port is so small as to escape inspection or too large to have every point under observation. All this is accomplished with so little fuss or officialism, there is such an absence of visible red tape and brass buttons, that it escapes general observation. But, "just for fun," disregard one of the few rules applying to the shipping of something or other, and when you go to land it—oh, my!—meanwhile our citizens repose in peace and safety behind a barrier that, though invisible, is mighty. But it is not only against imported ills that the government defends us. It sacrificed some of its bravest soldiers to learn the innermost secret of yellow fever, and by the death of Lazear and Carroll thousands of its citizens were saved and the tropics were opened to habitation.

Then it placed power without limit and wealth unmeasured in the hands of Gorgas with only the command to clear the way for enterprise and ability, and—but the story is hackneyed already. The idea, however, will never be hackneyed. It is this: Today the great aim and object of this mighty government is not to extend its territory or its influence, and not aggrandizement or glory, but it is seeking to make its people wise and

healthy and strong. To this end, guided by its corps of medical men, it guards the coast and shuts out pestilence, drains swamps, builds sanatoriums for sufferers from tuberculosis, arms its reckless sailors and soldiers against venereal infections, establishes schools on shipboard that its sailors may not be handicapped by ignorance when their terms of enlistment expire, and it has now, by edict, banished from its ships the so-called wine rooms that have led astray so many young officers from temperate homes. In what time or in what place has any government ever before thus devoted its power and wealth to the uplift of the whole people.

True, Constantine and Alexander built cities of dazzling grandeur, but their stones were cemented with the blood of helpless slaves, and their glory is departed; but our government is using its power, from Panama to Nome, from Spuytendyvel to the Golden Gate building homes for a nation of freemen, and the first requisite is *that no pestilence shall threaten.* Uncle Sam knows that hygiene is the foundation of success, and he is building wisely and well.

THE AMERICAN PURE FOOD LEAGUE.

At the Academy of Music, in New York, an organization with the above name was launched May 7th and 8th, 1914. It aims to "unite the efforts of all classes" for securing better and purer food, and it is nation-wide in its scope, officers and members coming from over the entire country.

The President, Dr. Robert McDowell Allen, is a Southern man. He hails from Lexington, Ky., and he is chief of the Kentucky Food and Drugs Department.

Space is lacking to say more of the objects of the league further than that by educating the people everywhere to know what constitutes good food and what food is not good there will arise a sentiment that will compel the attention of law-breakers to cease from troubling and dealers to remember the axiom: Honesty is the best policy. Such an organization for such an object must command the confidence and support of all.

THE PAN-AMERICAN SURGICAL AND MEDICAL JOURNAL.

The above named new aspirant for professional favor is certainly an excellent example of the publisher's art. It's one hundred and sixteen large pages of reading matter are clearly printed on smoothly calendared paper. The front cover represents the continents of North and South America printed in plain black upon a representation of the western hemisphere of impressive size. The first two numbers contain contributions of much interest, most of them being the papers read at the recent meeting of the Louisiana State Medical Society, of which the new journal has been made official organ. As a result of certain resolutions passed by the Executive Committee of the Louisiana State Medical Society, physicians who read papers before it are expected to publish them only in the Pan-American, and members who withhold their papers from publication in that official organ, or allow them to be published in other journals will be "penalized" for so doing.

The Mississippi Medical Monthly has discontinued publication, having merged into the Pan-American Surgical and Medical Journal, and its editor, Dr. E. F. Howard, of Vicksburg, with his collaborators have been placed on the editorial staff of the Pan-American.

Drs. W. T. Richards and A. O. Hoefeld, of New Orleans, are the editors-in-chief and the names of more than one hundred physicians appear as collaborators.

The editorials in the first two numbers are well conceived and forcibly expressed, and, indeed the whole publication is admirably organized and executed.

Richmond, the Convention City

Richmond, where the Southern Medical Association meets, November 9, 10, 11, 12, 1914, as perhaps no other Southern city, typifies the evolution and development of the new and awakened South. This distinction is its first because of its age and association with colonial history, because it was the heart of the ante-bellum South, because it gave its money, blood and very existence to the Southern cause, and because it arose from the devastating ruins of the fallen Confederacy a new, mighty and progressive city.

Richmond stands today the first city in the South in a dozen ways. Its corporate limits, fifty years ago enclosing little more than a village, have expanded until they enclose 151,000 people in a territory of 26 square miles. Its manufacturing and jobbing commerce approaches $200,000,000 annually, its bank clearings reach $450,000,000 in twelve months, while its custom house collects more than $1,000,000 in duties each year.

The fascinating cloak of romance which history has wrapped around Richmond and the State of Virginia has ever made Richmond a place of tourists and travel. Every foot of ground within a radius of miles has been a battleground—battlegrounds, indeed, in more than one war.

Richmond's sixteen hotels accommodate each year more than 350,000 visitors. No city in the South can boast such magnificent hotel facilities.

Richmond has often been called a city of monuments. The reason for this title will be readily seen by the visitor. Such occasions for the rearing of monuments and memorials have been afforded in the existence of the city that it is easy to understand that every square should contain marble and bronze of absorbing interest.

In Richmond rest the bones of two Presidents of the United States, the revered James Monroe and the no less honored John Tyler, and the earthly remains of Jefferson Davis, whose grave is the shrine to which thousands make pilgrimage each year.

The city's claim on the visitor's interest, whether from a historical, commercial, or professional point, is astonishing. Coupled with its accessibility and handsome hotel accommodation this peculiar interest which the city exerts upon the stranger makes it ideally a convention city.

THERAPEUTICS

THE PROPHYLAXIS OF TYPHOID FEVER.

Probably the views of physicians concerning the treatment of typhoid fever differ more widely than on any other point in therapeutics. In these columns the object is to give general consideration to the subject without attempting to decide in favor of any one plan further than to express briefly the views of its advocates. The physician who is thoroughly versed in the symptomatology and treatment of typhoid fever, with its many variations and frequent complications, is equipped for battle with many other diseases which, though of different etiology, have many similar symptoms. Of course, it is understood that the specific cause of typhoid fever is a low, cryptogamic organism called the bacillus of Eberth. It multiplies readily in many different media, especially in sweet milk, and lives indefinitely in earth, water and fomites. Heat of 140 F. kills it, but no degree of cold afforded by nature destroys its vitality. Exposure to sunlight is said to destroy it, but it can support such exposure as is afforded by pools, streams, or marshes, open to even a semi-tropical sun, as was demonstrated in McWhorter's report of the Riverton epidemic in Alabama. The dejecta of a typhoid patient, thrown out upon frozen snow, have been proved to cause a desolating epidemic when the warm weather returned.

No patient can have typhoid fever into whose system this bacillus has not found its way. The

most usual avenue of infection is the mouth, and the bearers of the poison are generally the food or drink.

One epidemic in a dry and dusty country town, with houses far apart, was accounted for on the theory that dejecta of a typhoid patient in a dry, hot summer, were regularly thrown out of doors to mingle with the dry dust which rose with every wind and fell upon the surrounding roofs that were the sources of drinking water, in the cisterns. The discharges from the bowels and the kidneys of typhoid fever patients swarm with millions of these bacilli, and flies that crawl upon them become covered with the infection which, for weeks, they can distribute upon whatsoever food they may reach.

Door knobs in houses where the disease exists are often infected so that the fingers of those who use them are liable to convey the poison to any fruit or other substance that they may touch.

Even as little knowledge of the etiology of typhoid fever as has been above expressed will serve as a foundation for an efficient prophylaxis against the disease, and as prevention is better than cure, the means thereof will first be briefly considered.

Certain things will destroy tne vitality of the bacillus of Eberth. Heat, especially that of boiling water, is one of them, and is always available. A solution of bichloride of mercury 1.2000, or four grains to the pint, will destroy it in clothing or bedding that has been infected. The vapor of formaldehyde gas emanating from a pint of the 60 per cent solution, called formalin, diluted with two quarts of water and profusely sprinkled upon sheets hanging upon lines in the room will disinfect an apartment sixteen feet square and ten feet high.

The one-millionth part of the substance popularly known as chloride of lime or bleaching powder will disinfect the drinking water of a city without changing its taste. Without any other precaution, simply boiling the drinking water will render it safe from typhoid or any other infection. When it has cooled its original sparkle and tastefulness can be completely restored by pouring it two or three times from one vessel into another, or by shaking it up in a bottle only three-quarters full. This entirely removes the flat taste of water that has been boiled.

Knowing what typhoid fever is, where it is, and how to prevent it, it is little less than amazing that the political authorities, whose duty it is to supervise and protect the welfare of the people over whom they preside, should allow such a preventable disease to continue to multiply and deplenish the earth.

The most efficient prophylaxis thus far devised and operated is vaccination against the disease. It has proven as efficacious as vaccination against smallpox and has protected, without exception, all who have submitted to it. The length of time the immunity persists is known to be over three years. How much longer is yet to be learned.

So efficacious has it proven that various state boards of health are manufacturing it and supplying it free of charge to the health authorities in the various counties who apply for it, and it is administered free. And every soldier and sailor of the United States is thus protected against this disease, which was heretofore the danger point of every campaign. (To Be Continued.)

CORRESPONDENCE

ON SUCCESS IN THE PRACTICE OF MEDICINE

ANOTHER DOSE OF WHAT DAD THINKS.

My Dear Son: I have had it on my mind to write you a letter regarding the art and science of success in the practice of medicine, and, as this is a day of rain, and no one seems inclined to come in and prevent it, I will give you a few of the ideas I have gathered in the thirty-seven years I have been in practice. Of course, I know just as well as you do that the things I say will have no effect, as a man to thoroughly demonstrate his inherent manhood is compelled to cast aside every means of learning except that of personal, and often bitter, experience. But I will proceed as if I thought you would take it all in and profit by it to the limit, and, really, I do hope you will think a little of the things I tell you, and consider that I have had some fairly good chances to get a lot of knowledge and to watch the game of life, as played by the doctors, from the inside.

There are, of course, several kinds of success, and different doctors have different ideals. To some the test of this age is enough, and to know that a man began poor and ended rich is evidence in plenty that he has been successful. In an age when it was considered necessary to be handsome if a man, or beautiful if a woman, to be

considered at all or to move in society, it can easily be seen what a shame it would have been to have been ugly. Nor did the test stop with one's self; it went back to the parents, and descended to the children. In these days there is no need to tell you that there is but one recognized test of success, no matter in what line of work a man may be spending his life; and that that test is the accumulation of wealth. You have noticed that it applies even to the clergy, and that one having wisdom enough to marry a rich widow is recognized as successful in the superlative degree, and is ever after considered worthy to give advice and to be able to show how to acquire heaven and at the same time be successful here.

If the test of the age is wealth I see no way to evade or dodge the need of accumulating at least enough of it to become independent before leaving the stage. And, anyway, a moderate amount of money, enough to give you rest when you need it and not enough to keep you on the everlasting grind to make more and to profitably invest what you have of income, is a fine thing, and you are justified in thinking enough of the "one great test" to go after a moderate quantity of the needful gold, provided you do not give up a more valuable holding to get it. This thing of marrying money is one of the most approved methods of obtaining it, and yet I do not think you would be wise in chasing after a girl with money. I have noticed that when a man succeeds in getting a wife with a lot of lucre he soons begins to swell up with a certain and very peculiar form of worldly pride, which can always be recognized and diagnosed easily by those who watch the race. It looks as if the fact that he had been selected as the "most worthy" fortune hunter had grown in his mind until the bare facts that he had married money was out of sight. This makes it safe for some people to marry for money, but you will not need to do so, for I will leave you enough to do somewhat as you please after I am done with the game.

To be really successful as a physician means to those fully initiated to be able to relieve suffering. It does not mean to be a great pathologist and to stand aside and see the patients die because you are bitten with doubt as to the benecial effects of medicines and measures and know only the one side of the business. It does not mean to be so popular that all the people in the country are your patients, unless you can and do relieve them when sick. There are still a lot of things in the tests as to success which old Hippocrates put there over two thousand years ago, and which the most mercenary of all ages has not covered up nor hidden. To think more of the work than of the reward is one of his ideas. To be helpful to one's fellow practitioners in every way possible, and to charge them nothing for any purely medical or surgical service, is another thing which indicates that a man is successful. To strive constantly to keep people well and to prevent sickness by every means possible, is another, and one of the best.

And in proportion as these ideas dominate the doctor is he to be judged a successful physician. If he can find more pleasure in writing receipts for cash than prescriptions for cases, then he is not as successful as he might be, even though his banker tells you that "he is one of the solid men of the town and getting richer every year." To achieve success in the art and science of medicine means many things other than financial gains and an eye single to the advantages of money. In all the history of medicine there is no instance where a great discovery was made for the money in it. Even that doubtful wonder, salvarsan, had not its foundation in the same financial field wherefrom it now draws its life. Years of constant, careful, expensive and dangerous experimentation preceded the announcement of its discovery; and there was no money in any part of the process until the thing had had a certain testing that seemed to show it capable of performing the impossible. It was only after all the hard and laborious work of the laboratory was completed that the commercial agencies were invoked and gotten into the game, and the world was to be saved "for a price." It looks funny, but the results obtained from the "sold" salvarsan by no means equal those gotten in the laboratory from the article before it became a commercial possibility and had its price fixed high in the heavens so that all might see and, in their dire need, buy. There were known centuries ago things which had no price and yet were valuable without it; and so it is today. The choicest things in all the range of medicine are not given a money value and cannot be so measured.

In the amount of work done there is a great danger if one uses it as a test of success. To be constantly on the jump, with no vacations and no time for thought, and the drawing, in peace, of an occasional long breath, I do not consider a very good sign of success, nor at all an assurance that the work done is of much merit. It requires time and thought and ability to do good

work of any kind, and the strenuous life and the best results do not come together.

When a doctor realizes that he has the same need for a change that his sick employers have, only a little less pressing probably because less noticeable to the general public, and so comes to take regularly a good rest every year he has made quite a long step toward success. To be successful there must be a mixture of work and rest, activity and thought, strenuousness and peace, and each man mixes the dose he takes as best suits the situation and the needs of the place and people.

Hoping this long homily has not tired you unduly, I am Your Loving Dad,

HIPPOCRATES PLUM, M.D.

BOOK REVIEWS

Modern Medicine. (Volume II.)

Its theory and practice in original contributions by American and foreign authors. Edited by Sir William Osler, Bart, M.D., F.R.S., and Thomas McRae, M.D. Second edition, thoroughly revised. Lea & Febiger, Philadelphia and New York, 1914.

An extensive volume of over a thousand pages, treating of the diseases caused by protozoa and animal parasites, diseases due to physical, chemical, and organic agents; diseases of metabolism and of the respiratory system, etc. It is well illustrated and handsomely bound, and gives one the benefit of the latest and most up-to-date ideas of modern medicine. The names of the authors alone are a sufficient guarantee of its soundness and practicality. Vol. I has already been reviewed by this Journal.

Clinic of John B. Murphy.

Clinics of John B. Murphy, M.D., Mercy Hospital, Chicago. Volume III, No. 1. Octavo 190 pages, 94 illustrations. W. B. Saunders Co., Philadelphia and London, 1914. Published bi-monthly. Price per year: paper, $8.00, cloth, $12.00.

Certainly Dr. Murphy needs no introduction to any reader of this Journal. His is a household name among physicians, and his surgical procedures are among the very best. This volume is particularly well gotten out, and the skiagrams and photographs are descriptive in themselves. In the contents are found titles such as "Fracture of Internal and External Malleolus," "Ankylosis of Hip," "Complete Bony Ankylosis Between Tibia and Patella and Femur," "Removal of Enlarged and Dilated Stump of Gall-Bladder Following a Previous Operation with Secondary Perforation of its Wall by Three Calculi," etc.

Pathogenesis of Salvarsan Fatalities.

By Dr. Wilhelm Wechselmann, Directing Physician of the Dermatological Department, Rudolph Virchow Hospital in Berlin. Authorized translation by Clarence Martin, M.D., Berlin Urological Society, First Lieut. M.R.C., U. S. Army, etc. Price, $1.50. The Feming-Smith Co., Medical Publishers, St. Louis, Mo.

It contains the most serious investigations into the underlying factors operative in fatal cases. The author's purpose is to teach greater caution in salvarsan therapy, and all physicians interested in the treatment of syphilis by means of salvarsan and neo-salvarsan will find this book worthy of their closest attention and study. The author points out that inefficiency of the kidney, rather than brain hypersensitiveness, is the point in salvarsan fatalities, and shows the risk of conjoint use of salvarsan and heavy mercurial treatment.

Blood Pressure in Medicine and Surgery.

A Guide for Student and Practitioners. By Edward H. Goodman, M.D., Associate in Medicine in the University of Pennsylvania. Lea & Febiger, Philadelphia and New York, 1914.

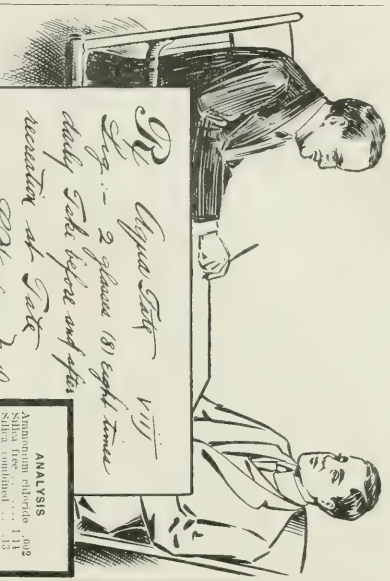
This little volume will greatly interest the practitioner of today. The discovery of blood pressure is of almost as great importance as that of the circulation by Harvey, and the importance of sphygmomanometry can hardly be over-estimated; in fact, it constitutes one of the most important features of a routine examination, and furnishes a great amount of diagnostic, prognostic, and therapeutic information. The significance of changes in blood-pressure, and the methods employed, are clearly set forth, thus making this a valuable addition to the medical library.

The Diagnosis and Treatment of Digestive Diseases.

A Practical Treatise for Students and Practitioners of Medicine. By George M. Niles, M.D., Professor of Gastro-enterology and Clinical Medicine, Atlanta Medical College; Gastro-enterologist to the Georgia Baptist Hospital, Wesley Memorial Hospital, Atlanta Hospital, etc. With one colored photo, 86 illustrations and 597 pages. Price, $5.00 net. P. Blackiston's Son & Co., Philadelphia.

This prolific Southern writer has produced a book which well fits the needs of the internist. Practical and based on the experience of a large number of cases, it answers two important questions for the general practitioner, namely, "What is the matter?" and "What must I do for it?" It gives concise and intelligible descriptions of tests for the study of gastric contents, intestinal juices and feces; practical methods of determining position, sizes, etc., of the abdominal viscera; clear statements of the diagnostic methods, treatment, etc. Altogether it constitutes a valuable addition to the physician's library.

(Continued on adv. page XX.)



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(Continued from page 680.)

A Synopsis of Medical Treatment.

By George Chever Shattuck, M.D., Assistant Physician to Massachusetts General Hospital. Second edition, enlarged and revised. Price, $1.25, postpaid. W. M. Leonard, publisher, Boston. 1914.

The success of the first edition of this book has warranted the present revised edition. Its logic is good, and its sound principles of treatment are based on known lesions, and are stated clearly and concisely. The treatment is given in condensed form, and embraces the latest methods in vogue for most of the common diseases met with in general practice.

Progressive Medicine.

A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences, of Therapeutics, Materia Medica and Diagnosis Edited by Hobart Amory Hare, M.D., Professor in the Jefferson Medical College. Assisted by L. F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College. Lea & Febiger, New York and Philadelphia. Six dollars per annum. March, 1914.

Contains the latest thought and the most advanced ideas in medicine and surgery and keeps thoroughly abreast of the times. The editors and contributors are a sufficient guarantee for any article contained. This volume presents such topics as Surgery of the Head and Neck, Surgery of the Thorax, Excluding Diseases of the Breast, Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, Influenza, etc.; Diseases of Children——Rhinology and Larynology, Otology, etc.

Local Anesthesia.

By Dr. Arthur Schlesinger (Berlin). Translated by F. S. Arnold, B.A., M.B., B.Ch., etc. Price, $1.50 net. Rebman Company, New York.

For the past few years no branch of surgery has made more rapid strides than that of local anesthesia. Various major operations are very frequently done under its effects. Spinal anesthesia for operations below the umbilicus are exceedingly common, and various forms of laparotomies are constantly being done, not to mention various and sundry minor operations. The best methods of securing local anesthesia from the simplest to the most difficult are clearly dealt with in this volume. Practical methods are combined with simplicity, this securing a happy combination for the busy surgeon.

The Clinical History in Outline.

By Paul G. Woolley, B.S., M.D., Professor of Pathology, University of Cincinnati; Director of Laboratories, Cincinnati General Hospital. Price, $1.00. C. V. Mosby Company, St. Louis. 1914.

Demands are being made for a more thorough clinical history of patients in the hospitals and wards, as well as elsewhere. Diagnosis and treatment are dependent upon the correctness of this procedure, and he who possesses the art of taking a history well is indeed fortunate. No guide can be absolute in every case, but this volume sets forth the principal routine data to be secured and serves as a reminder for those points likely to be forgotten. It is systematic in its arrangement, small of size, easily handled, and of great benefit, especially to the beginner.

Treatment of Chronic Leg Ulcers.

A Practical Guide to Its Symptomatology, Diagnosis and Treatment. By Dr. Edward Adams, Instructor of Surgery, New York Post-Graduate Medical School and Hospital; Surgeon to German Hospital, O. P. D., etc. 122 pages. Cloth, $1.00. The International Journal of Surgery Company, New York City.

The chronic ulcerative processes of the lower limbs is a common condition confronting the surgeon and practitioner, especially in the large clinics and in communities where we have to deal with the negro, since he is particularly susceptible to syphilis, tuberculosis, trauma of the limbs, and other things which favor the production of leg ulcers. This book is especially valuable inasmuch as very little work on this subject alone exists. The diagnostic points of the more common varieties of ulcers are given, followed by the treatment adapted to each individual class. In addition, a treatise on symptoms, diagnosis and surgical treatment of varicose veins is given.

History of Medicine.

History of Medicine, with Medical Chronology, Bibliographic Data, and Test Questions. By Fielding H. Garrison, A.B., M.D., Principal Assistant Librarian, Surgeon-General's Office, Washington, D. C.; Editor of the "Index Medicus." Octavo of 763 pages, containing many portraits. W. B. Saunders Company, Philadelphia and London, 1913. Cloth, $6.00 net; half Morocco, $7.50 net.

The object is to furnish a definite outline of the history of medicine and to produce a number of facts which may be of use in the professional work or desirable to know as a part of medical culture. The history of medicine is a record of ups and downs, brave aspirations after truth and finality, pathetic failures and glorious successes. The work is taken up from the earliest times and followed through the Egyptian period, the Greek period, the Medieval period, the Renaissance, Revival of Learning and Reformation, the Seventeenth Century, the Eighteenth Century, and the Modern period of Medicine. The prominent figures in medicine and surgery of these times are mentioned, and the pictures are designed to illustrate the costumes as well as the personalities of the leaders of medicine during these periods.

On Dreams.

By Dr. Sigm Freud. Authorized English translation by M. D. Eder, from the second German edition, with an introduction by W. L. Mackenzie, M.A., M.D., L.L.D. Rebman Company, New York. Price, $1.00 net.

"The interpretation of dreams," says Professor Frend, "is the royal road to a knowledge of the part the unconscious plays in mental life." In the

(Continued on adv. page XXII.)

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(Continued from adv. page XX.)

present volume he gives a sketch of psycho-analysis as applied to the interpretation of dreams, and shows that the aim of psycho-analysis is the tracing back of the dream images to a definite meaning in the experience of the individual. The theory is that dreams have to do with the past and not the future, and that they are largely the expression of unfulfilled desires, and that they are linked in some way to recent experiences. "The day's experience and the life's experience flow in a single stream, and the images that appear in dreams are but the symbols of all the latent ideas of that experience." The emotions of sex play an enormous part in the process of his analysis. If his theory is true, the land of dreams will more and more become a resort where our thoughts and experiences are revealed.

A Reference Handbook of the Medical Sciences.

A Reference Handbook of the Medical Sciences, Embracing the entire range of Scientific and Practical Medicine and Allied Science. By various writers. Third edition, completely revised and rewritten. Edited by Thomas Lathrop Steadman, A.M., M.D., complete in eight imperial quarto volumes. Volume 3, 934 double-column pages, illustrated by 659 engravings and seven full-page plates in colors. Wm. Wood & Co., New York. Price, $7.00 net, cloth; $8.00 net, leather; $9.00 net, half Morocco.

One of the most popular books written, and the popularity of this volume exceeds that of previous ones. In mechanical make-up the book would be hard to excel. The paper is excellent, the illustrations of high grade and the effect altogether pleasing. Very useful for quick and accurate information. Of the 539 individual articles contained some deserve special mention, viz., Dislocations, Embrylogical articles, Criminology, Asexualization of Criminals and Defectives, Cranial Nerves, Surgery of the Colon, Colon Bacillus Infections, Diseases of the Eye, Huntington's Chorea, Diabetes, Tests for Color Blindness, Electro-Diagnosis, Dermatitis, etc. Biographies of physicians of ancient and modern times are given, and a very great number of short definitions are given.

Ten Sex Talks to Boys, Ten Years and Older. Ten Sex Talks to Girls, Fourteen Years and Older.

By I. D. Steinhardt, M.D., Assistant Surgeon, Cornell University; Assistant Pediatrist, Mount Sinai Hospital, etc. J. B. Lippincott Company, Philadelphia and London. Price, $1.00 each.

These companion volumes intend to convey to the maturing boy or girl that information about themselves which false modesty on the part of the parents has prevented their knowing, or to correct the false impressions which they have received through wrong channels and distorted avenues, and to teach them the clean truths of nature. The parents, the family physician and safe books are the sources from which this knowledge should be gained and failure to secure it in these ways has led to many a life of sorrow and vain regret. They take up the reproductive system, the diseases to which they are liable, and terrible results of disease to them and their offspring; unclean and vicious habits and how to overcome them; the requirements for marriage, parenthood, etc.; in fact, they constitute a sum total of indispensable information where parents or physicians have been negligent in this regard.

Psychology and Mental Diseases.

A handbook for use in training schools, for attendants and nurses, and in medical classes, and as a ready reference for the practitioner. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital for Mental and Nervous Diseases; member of the American Medical Association, of the American Neurological Association, etc. Fourth edition, revised and enlarged with illustrations. Price, $1.50 net. F. A. Davis Company, publishers, Philadelphia.

The study of mental and nervous diseases and psychiatry is occupying a greater field now than ever before. With the increase in insanity and of those conditions of life which tend to produce it, this subject becomes exceedingly important not only in itself alone, but in its relation to the other branches of medicine and surgery, as well as to our manner of living, reproduction, etc. This revised edition concerns itself largely with things of special interest to the medical man. It first takes up the subject of psychology, and then leads out into the field of the disordered brain and nervous system, taking up the various forms of mental aberations with their causes and treatment. In its concentrated form it will be of great aid to those who haven't the time or inclination to peruse the large and more cumbersome works on this subject.

Clinical Diagnosis.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. For students, hospitals, physicians and practitioners. By Chas. E. Simon, M.D., Professor of Clinical Pathology and Experimental Medicine in the College of Physicians and Surgeons, Baltimore. Eighth edition, enlarged and thoroughly revised Octavo of 809 pages, with 185 engravings and 25 plates. Cloth, $5.00 net. Lea & Febiger, Philadelphia and New York. 1914.

This is one of the leading works on the subject of clinical diagnosis, as is shown by a demand sufficient to produce an eighth edition. In it will be found the advances and progressions given to the science of laboratory diagnosis within the last two years. The account of the diagnostic methods based upon the protective ferments of Abderhalden in the blood is given; the technique of the Wassermann has been rewritten; the applicability of the complement fixation test to latent gonococcus infections is shown; the more modern methods of investigating the existence and extent of renal disease are carefully considered. In addition to the ordinary chapters on blood, urine, feces, gastric contents, etc., there is a part in the second portion entitled, "The Essential Factors in the Laboratory Diagnosis of Various Diseases," in which the application of laboratory findings to disease is very satisfactorily set forth, and under

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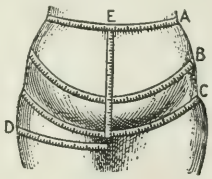

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(Continued from adv. page XXII.)

the various diseases, which are alphabetically arranged, are given the essential points of diagnostic significance.

Practical Hormone Therapy.

A Manual of Organotherapy for General Practitioners. By Henry R. Harrower, M.D., late Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Member of the American Medical Editors' Association. With a foreword by Professor Dr. Artur Bieal, Vienna. Demy 8vo., pp. xx+488 with five figures. 1914. London, Bailliere, Tindall & Co:; New York, H. R. Harrower, 880 W. 180th Street. $4.50 net.

Starling says: "By the term hormones' I understand any substance normally produced in the cells of some part of the body and carried by the blood stream to distant parts which it affects for the good of the organism as a whole. The hormones are thus the chemical means of correlation of the activities of different parts of the body. Their action may be either the increase or diminution of function, or the alteration of nutrition or the rate of growth." The study of hormones or the action of the ductless glands and internal secretions on the human metabolism is an already established principle in the application of clinical therapeutics. For the past few years there has been an almost unparalleled progress in this branch of medicine and many are the discoveries that have been and are still being made by workers along this line. While the subject has not yet been fully worked out and is, to a degree, still shrouded in mystery, yet the preparations from the thyroid, pituitary, adrenals, etc., are accomplishing wonders in the field of modern medicine.

This book is particularly interesting in that it is the only one of its kind in English; it opens out before us the many possibilities of organotherapy and inspires an interest in the various and necessary metabolic changes wrought by the hormones circulating in our bodies. The paper is good, the print large and easily read, and the book is nicely bound. Among the titles from the different sections are such as "The Hormones of the Digestive System," "The Metabolic Glands," "The Nervous System," "The Reproductive System," 'The Vascular System," etc.

SOUTHERN MEDICAL NEWS

ALABAMA.

Dr. R. M. Cunningham, City Health Officer of Birmingham, has entirely recovered from his recent serious illness. He recommends that an "Inspector of Rats" shall be appointed for that city as a precaution against the arrival of plague.

At Mobile the Rotary Club contributed $2,200 for rat extermination. They declare that "Mobile hasn't any plague and doesn't propose to have any."

The Mobile County Medical Society has appointed twenty-five inspectors whose duty it is to report all violations of sanitary laws and assist in the fight against rats.

At Birmingham Chief Sanitary Inspector Burson made his report for July to Dr. Cunningham, the City Health Officer. During the month 124 restaurants, 140 soda fountains and 10 bakeries were inspected. Thirty-three flags were put up and 77 rooms fumigated. He has 12 sub-inspectors working under him.

At a lecture to the public in Mobile, which was heard by more than 5,000 people, Assistant Surgeon-General Rucker, of the United States Public Health Service, declared that his observations led him to the conclusion that conditions in Mobile, like every other Gulf and Atlantic city, were fine for an invasion of plague, but equally fine for preventing it. "It all depends upon the people of Mobile." They can keep it out, or they can let it in. Mobile proposes to keep out the plague, and City Health Officer Mohr, aided by Surgeon Grubbs, of the United States Public Health Service, and five other physicians, each of whom have five assistant inspectors, is conducting the most active health campaign ever attempted in Mobile. The City Commissioners have passed ordinaces for rat-proofing the entire city, and they will be rigidly enforced.

ARKANSAS.

The President and the Secretary of the State Board of Health found an outbreak of typhoid fever at Pleasant Hill, in Lonoke County. The cause was traced to an old well at the Brewer School, which they ordered closed.

Dr. W. L. Sadler, formerly house surgeon for the St. Louis, Iron Mountain & Southern Railway Company, has opened an office at 110 Cross Street, Little Rock.

FLORIDA.

At Tampa, Mayor McKay is pushing the work of rat extermination. The official rat catcher, Arthur Schleman, caught a rat recently covered with ulcers, but with no sign of plague. The state bacteriologist, Dr. Herbert R. Mills, pronounced it rat leprosy, a disease transmissible to other animals, but not to man.

The State Health Officer, Dr. Joseph Y. Porter, sent Dr. S. R. Mallory Kennedy, of the United States Public Health Service, by permission of Surgeon-General Blue, to New Orleans to study the plague and the means of its prevention. He reported to Dr. Rucker, Government expert in charge of the situation there.

At Tampa the Mayor has requested the business men to co-operate with him in fortifying the city against the advent of plague. He recently visited the river front on a tour of inspection and expressed himself as alarmed at the conditions he saw in and beneath some of the warehouses.

(Continued on adv. page XXVI.)

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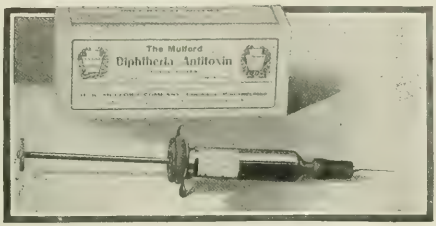

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LONDON, ENGLAND

(Continued from adv. page XXIV.)

At Jacksonville Dr. C. E. Berry, City Health Officer, presented a bill to the council for its adoption for the elimination of fly-breeding conditions in the 1,300 stables in the city. The council refused to pass the bill, whereupon Dr. Terry expressed himself as follows: "I feel that the responsibility for the fly-borne diseases has been taken from the shoulders of the Health Department of Jacksonville."

In a recent lecture before the Tampa Audubon Society, Dr. E. R. Mills, assistant state bacteriologist, declared that the owl family were of great assistance in ridding a community of rats. In Florida they are protected by law except the great horned owl, which is the best rat hunter of all. Under one nest of these owls there were found the skulls and bones of 117 rats. Yet it is known that a large part of their prey is devoured where it is captured.

Dr. Thomas S. Field, Jacksonville, announces the removal of his office to the St. James Building

GEORGIA.

At Marietta, Georgia, July 27th, Dr. W. L. Landon, a prominent physician of Taylorsville, was driving in his automobile to visit patients, he was shot and killed by a farmer named Weston Jones, whose house he was passing. It is said that Jones claimed that the doctor had used bad language to Mrs. Jones a few days previously.

On July 30th the lower house of the Legislature passed a public health bill. It provides for district commissioners from each county at a salary of not less than $1,200 a year. Their duty is to enforce all the health laws of the state. Once every six months they are to make a sanitary survey of all public buildings and institutions in their respective jurisdictions. Special stress is laid upon the inspection of schools, including both teachers and pupils. They are also to lecture on sanitary subjects whenever it is required by the State Board of Health.

By unanimous vote of the Senate Committee on Hygiene and Sanitation an investigation is to be made into the management of the State Board of Health. It is charged that it has ignored the requirements of the code.

In Atlanta about three hundred school children had been vaccinated by the 1st of August. As many more must be vaccinated before they can enter school in September.

KENTUCKY.

At Louisville, on recommendation of Charles F. Taylor, of the Board of Public Safety, Dr. E. E. Owen, Secretary and Assistant Superintendent, has resigned, and Dr. Arthur L. Nelson was appointed to take his place. Mr. John Rufer was appointed steward. The institution referred to is the City Hospital.

The churches of Louisville are preparing to observe the fifth annual Tuberculosis Day to be observed during the week of November 29th all over the country The ministers will be asked to report the number of deaths from tuberculosis during the year in their respective parishes and the number of living cases on September 1st.

At Lexington City Health Officer N. R. Simmons announces that the only two cases of smallpox Lexington has had for several weeks were discharged August 7th, leaving none in the city or county.

Health officers from all over the state report a large increase in the number of cases of pellagra The State Board of Health called a second conference of county and city health officers at Pineville, August 18-20. They will consider both pellagra and the laws for the prevention of blindness. Many other physicians and sanitary engineers have been invited to attend the meeting.

LOUISIANA

At Lake Charles, July 16th, died Dr. James Ball Rogers, aged 76. He was buried at his home, near Kinder.

At the New Orleans quarantine station Dr. Corput recently found quite an assortment of dead things in the hold of a ship he had just fumigated. There were young boa constrictors, some smaller snakes, seventy rats, and cock roaches and bed bugs by the gallon. Also eighteen tarantulas.

At the Pineville Hospital for the Insane there are 722 patients, though the normal capacity of the building is only 560. At a recent meeting of the Board of Administrators arrangements were made for the furnishing of two additional wards, with a total capacity of 160 patients. In these wards the chronic and the convalescent cases will be cared for.

At Kenner Dr. J. W. Babin was shot through a screen door by a burglar who was retreating from his house. Dr. Babin's house stands in the heart of Kenner, facing the drug store. Before he lost consciousness he said he fired at the burglar who returned the fire. A rain obliterated all traces of the criminal's footsteps.

In a recent lecture at the hall of the Y. M. C. A. in New Orleans Dr. Rucker estimated that the cost to that city of supporting its rat population is not less than $5,000 a day every day of the year.

At the State Fair this fall the Shreveport Charity Hospital, with Dr. A. P. Crain at its head, will be in charge of the emergency station.

Charbon has appeared on a plantation at Napoleonville. Also at Oscar there are four persons under treatment for the disease.

At Vicksburg Dr. E. R. Cook was pronounced not guilty of the murder of Miss Rosa Grant, of Oak Ridge, the jury being out only fifteen minutes.

At New Orleans the war against rats continues with unabated vigor. Between twenty and thirty infected rats have been caught, mostly in the vicinity of the L. & N. roundhouse and the French Market. An occasional case of plague is found and promptly isolated. The disease seems to be remarkably amenable to treatment, as nearly all the cases recover.

The city, state and national sanitary forces are working in harmony for the protection of New Orleans and the surrounding country from the spread of plague. Frequent meetings of the citizens are held at which the situation is discussed

(Continued on adv. page XXVIII.)

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For the Users of No-Rim-Cut Tires

These are four of the greatest features ever employed in tire making.

Each combats, in the best way known, one of the major tire troubles.

All four are exclusive to Goodyear No-Rim-Cut tires. That is why these tires rule. No other tire in the world to-day has so many users.

The Four

To end rim-cuts, these tires alone have our No-Rim-Cut feature. It completely wipes out this chief cause of tire ruin, in the only satisfactory way that's known.

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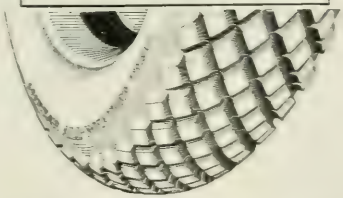
With All-Weather Treads or Smooth



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1854

(Continued from adv. page XXVI.)

and ways and means devised. The utmost earnestness is evidenced, the business men halting at no expense to exterminate rats and render their buildings rat-proof. There is no panic, no epidemic and no fear of one.

Dr. S. Goldberger, of the United States Public Health Service, while studying the prevalence of pellagra, visited Shreveport recently, and found 22 cases of that disease. They were all in the Charity Hospital.

Dr. Oscar Dowling, State Health Officer of Louisiana, has been appointed chairman of the Committee on Vital Resources of the National Conservation Congress. With him on that committee are Professor Irving Fisher, of Yale; Dr. George E. Koeber, of Washington, D. C.; E. E. Rittenhouse, of the Equitable Life, and Dr. John A. Witherspoon, President of the American Medical Association.

At the Recorder's court recently in New Orleans the judge fined forty-five offenders $5 each for having garbage cans without covers. This was for one day only.

Up to the first of August the 300 men employed in New Orleans for sanitary work had caught 26,000 rats, dead and alive. The daily average at that time was 1,500. The Board of Health and its employes are vaccinated against plague, and many citizens daily come to the City Hall to receive the vaccination free. The work has been extended to Algiers, where cleaning up and rat-catching are in full swing.

The Natchitoches Board of Health has been reorganized as follows: Dr. Joseph Bath, President, and Drs. J. W. Cockerham, C. M. Cunningham, L. A. Davis and M. L. Dismukes.

MISSISSIPPI.

Dr. Oliver R. Radley, Health Officer of Jackson County, reports charbon prevailing in his vicinity. Many cattle are said to have died of the disease in the adjoining county of Matagorda.

TEXAS.

The clean-up campaign in Temple during the last week in July was thorough. Two hundred acres of weeds were said to have been cut and a thousand tons of trash removed during the week. An extra force of ten men and six teams was employed.

At Galveston the anti-plague campaign is earnest. In the first fourteen days the catch of rats was 1,009. No infected rats or bubonic fleas were found. Charlie Bertolino, an employe of the street force, won a prize of ten dollars for catching 1, in fourteen days.

Several citizens of El Paso, among them Dr. Hugh Vrouse, are caught in Europe by the general embargo. Some had children at school there and were visiting them.

Dr. George R. Tabor was married to Mrs. Augusta Jones Hunting, at North Conway, N. H., July 29th. They spent the honeymoon motoring through New England. They will make their home in Houston.

Young boys are stealing automobiles, motor cycles and buggies for "joy rides" and leaving them wherever they are through with them. Recently a lady who, with her daughter, was enjoying a walk in the park, found when they were ready to return home that their rig was stolen, and they were compelled to walk more than two miles. The automobile of Dr. H. E. Brown has thus been stolen twice in a fortnight.

Dr. J. P. Hewson, of Beaumont, has removed to Orange, where he will practice his profession.

The ports of Sabine and Port Arthur are being placed in sanitary condition and a large number of rat traps distributed. All shipping is carefully inspected.

At the recent examination of applicants for license to practice medicine there were 141 applicants before the state board. Of these twelve were Mexicans, forced to leave their country. They passed the examination successfully and several of them will settle permanently in Laredo.

As Dr. Frank A. Osborne, of McAllen, was crossing the St. Louis Railroad near Donna, his auto was struck by a train and he was seriously injured.

NORTH CAROLINA.

At Greensboro Dr. W. S. Rankin, of Raleigh, Superintendent of the State Board of Health, made an inspection for the second time. He states that in his judgment the number of flies in Greensboro has been reduced over 90 per cent by the energetic sanitary work which the city has accomplished. He stated also that their war against mosquitoes was very effective.

At West Asheville Dr. G. D. Gardner was accidentally shot in his office by Miss Mary Davis, a former employe. The wound was not fatal and no arrest was made.

Although having no fear that the bubonic plague will reach Wilmington, yet that city is taking energetic steps towards the extermination of rats. The City Council appropriated $100 for the purchase of live rats at five cents each.

The State Board of Health has issued a bulletin on the prevalence of pellagra. It finds that more women die from the disease than men. The average death rate from pellagra for the past three years has been 41.6 per 100,000, or nearly twice the average of the typhoid fever death rate in the United States. It is more prevalent among the white than among the colored people.

The State Board of Health is concerned over the prevalence of typhoid fever. In 1913 there were 1,470 deaths for the entire state, which is an average of about 64 per 100,000. This is three times the average for the United States. Sanford has the largest death rate and Asheville the lowest.

The State Board of Health is furnishing the anti-typhoid vaccine free of charge to all the county health officers for the benefit of those who will submit to vaccination. The vaccine is made in the State Laboratory of Hygiene, which finds it difficult to meet the demands.

SOUTH CAROLINA.

Dr. Rosa Gantt is Chairman of the Health De-

(Continued on adv. page XXX.)

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(Continued from adv. page XXVIII.)

partment of the South Carolina Federation of Women's Clubs. She reports that the work has been principally along educational lines, urging social hygiene. The committee recommends the employment of visiting nurses to work both in town and in country for child hygiene, food sanitation, social hygiene and tuberculosis. It also urges that clubs appoint committees to visit the schools and superintend the sanitary conditions there.

Charleston sent Dr. J. Mercier Green, City Health Officer, and Dr. G. McF. Mood to New Orleans to make a thorough study of bubonic plague and the methods there used for its prevention. Meanwhile, energetic efforts were made to catch or destroy the rats in the city and to prevent the landing of any rodents from the visiting ships.

Dr. Asbury F. Coward, of the State Board of Health, reports that during July more than ten thousand anti-typhoid vaccine treatments had been dispensed. The total number for the whole of last year was little more than twice that number.

At Spartanburg the Hillbrook Dairy was boycotted and shut out of business because of the fact that out of twenty cases of typhoid fever, fifteen used milk from that dairy. Dr. James A. Hayne, Secretary of the State Board of Health, inspected the dairy and found it to be a model institution where everything possible was done to insure clean, wholesome milk. He thinks that probably the bottles were accidentally contaminated by hand

At Charleston the citizens are very generally submitting to typhoid vaccination and it is thought that the number of typhoid fever cases is diminishing. The demand exceeds the supply.

The Journal has received notice of the death of Dr. A. B. Knowlton, of Columbia, S. C. Dr. Knowlton was a man of inexhaustible energy, unyielding courage and great fertility of resource, giving him a leading position among his colleagues. His death is a loss not only to his immediate relatives and friends, but to the entire medical profession of the South.

VIRGINIA.

At Lynchburg there were 62 deaths in July, 39 white and 23 colored. Nine cases of typhoid were reported and vaccination was urged. One death was from para-typhoid. Two were from pellagra. There were 95 cases of tuberculosis still living.

The first annual report of the Municipal Department of Health of Danville was read August 1. Dr. C. C. Hudson, City Health Officer, is its compiler. It shows that there were 374 deaths in the city during the twelve months. Dr. Hudson has no assistant, but is his own visiting inspector, dispensary doctor, clerk, stenographer and typewriter. He also keeps the books and records. During the year he made 4,286 official visits.

WEST VIRGINIA.

The Pultney Township Trustees have contracted with Dr. J. M. Hensley, of Wheeling, to serve as physician for the eastern part of the township for the year, and Dr. Cole, of Neffs, who will serve in the western part.

Dr. Robert J. Reed, President of the Wheeling Board of Education, and Dr. J. O. Howells, of Bridgeport, were in Europe attending the World's Congress of Physicians when the war broke out. The family of Dr. Howells accompanied him.

Dr. A. V. Weinburger, a prominent surgeon of Wheeling, has been wired by the Austrian Consul-General at New York to enroll himself at once for the Austrian medical service. In his youth he was a member of the famous "Kaiser Jager Regiment." Dr. Weinberger had taken out his papers of citizenship some time ago, and is an American citizen. Therefore he will not go back to Austria.

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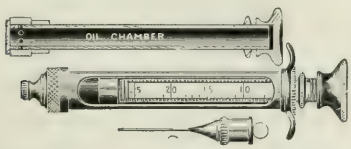

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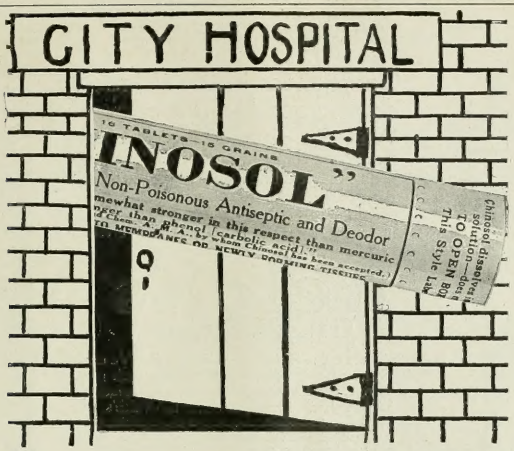

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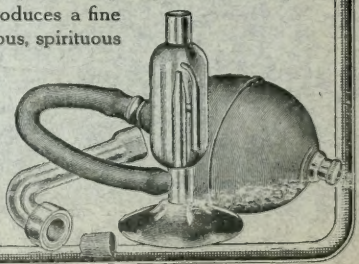

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